UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
P. O. Box 1149, Meeker, Colorado 81641

August 13, 1975

NOTICE TO USERS:

The soils maps and interpretations provided within the survey material attached are provisional, or tentative, and subject to change as the remainder of the county survey is in progress.

Soil Survey

William Scott Tripp
acting Party Leader

Soil Identification Legend for the

Bureau of Land Management Contacted Interim

Soil Survey in the Piceance Basin of Rio Blanco County,

Colorado

August, 1975

Map Symbol	Unit Name
60	Aridic Haploborolls, fine loamy mixed, 12 to 50 percent slopes
71C	Forelle loam, 3 to 8 percent slopes
71D	Forelle loam, 8 to 15 percent slopes
41	Glendive fine sandy loam, 2 to 15 percent slopes
9	Hagga loam, 0 to 5 percent slopes
75	Hanly gravelly loamy fine sand, 2 to 9 percent slopes
38	Havre loam, 0 to 3 percent slopes
38C	Havre loam, 3 to 8 percent slopes
61	Lithic Haploborolls, loamy skeletal mixed, 15 to 50 percent slopes
70	Piceance fine sandy loam, 5 to 15 percent slopes
66	Redcreek - Rentsac complex, 5 to 30 percent slopes
63	Rentsac channery fine sandy loam, 5 to 50 percent slopes
X63	Rentsac - Piceance complex, 0 to 25 percent slopes
RT	Rock outcrop - Torriorthents, 15 to 90 percent slopes
73	Yamac loam, 2 to 15 percent slopes

Tentative - subject to revision

UNNAMED ARIDIC HAPLOBOROLL LOAMY-SKELETAL MIXED SERIES (60)

The 60 series consists of moderately deep, well drained soils that formed in colluvium on foothill sideslopes. The 60 soils have slopes of 12 to 50 percent. Mean annual precipitation is about 18 inches and the mean annual air temperature is about 42°F.

Typical pedon of 60 channery loam, 12 to 60 percent slopes, SW¼ NW¼ Section 10, T1N, R99W.

UNNAMED ARIDIC HAPLOBOROLL LOAMY-SKELETAL MIXED SERIES (CO)

The CO series consists of moderately deep, well drained soils that formed in colluvium on foothill sideslopes. The CO soils have slopes of 15 to 50 percent. Mean annual precipitation is about 18 inches and the mean annual air temperature is about 45°F.

Typical pedon of CO channery loam, 15 to 50 percent slopes, SW¼ NW¼ section 10, T1N, R9W.

A1 0 to 6 inches; very dark grayish brown (10YR 3/2) channery loam, dark grayish brown (10YR 4/2) dry; moderate medium and fine granular structure; soft, very friable, nonsticky and nonplastic; 20 percent channery; strongly calcareous, moderately alkaline; clear smooth boundary.

B21 6 to 14 inches; very dark grayish brown (10YR 3/2) channery loam, grayish brown (10YR 5/2) dry; moderate medium subangular blocky structure parting to moderate fine subangular blocky structure; slightly hard, very friable, nonsticky, nonplastic; 20 percent channery; strongly calcareous, moderately alkaline; clear, smooth boundary.

B22 14 to 22 inches; dark grayish brown channery sandy loam, grayish brown (10YR 5/2) dry; weak medium subangular blocky structure; slightly hard, very friable, nonsticky, nonplastic; 30 percent channery; very strongly calcareous, moderately alkaline; gradual wavy boundary.

Cca 22 to 38 inches; grayish brown (10YR 5/2) extremely channery sandy loam, light gray (10YR 7/2); massive; slightly hard, very friable, nonsticky, slightly plastic; 50 percent channery and 15 percent flags; very strongly calcareous, moderately alkaline; gradual wavy boundary.

R 38 inches, hard sandstone.

A	38 inches, part sunglasses.	
	elkmilne, straight new pondgate.	
	and 15 percent fluke, very softly calcareous, moderately	
	very friable, nonplastic, slightly bimodal: 20 percent channery	
	sandy loam, light gray (10YR 7\5); massive; slightly hard,	
C&R	55 to 38 inches, greyish brown (10YR 5\2) extremely channery	
	elkmilne, straight new pondgate.	
	percent channery; very softly calcareous, moderately	
	slightly hard, very friable, nonplastic, nonbimodal: 30	
	brown (10YR 5\3) dry; weak medium subangular blocky structure;	
BS5	14 to 55 inches, dark grayish brown channery sandy loam, grayish	
	elkmilne, gravel, smooth pondgate.	
	bimodal: 50 percent channery; softly calcareous, moderately	
	blocky structure; slightly hard, very friable, nonplastic, non-	
	sungular blocky structure parting to moderate fine subangular	
	loam, grayish brown (10YR 5\2) dry; moderate medium sub-	
BSJ	8 to 14 inches, very dark grayish brown (10YR 3\5) channery	
	moderately alkaline; clear smooth pondgate.	
	and nonbimodal: 50 percent channery; softly calcareous,	
	and fine grained structure; soft, very friable, nonplastic	
	loam, dark grayish brown (10YR 4\5) dry; moderate medium	
AI	0 to 8 inches, very dark grayish brown (10YR 3\5) channery	

Unnamed Aridic Haploborolls loamy-skeletal mixed, 12 to 60 percent slopes (60).--This is a moderately deep, well drained soil on northern mountain sideslopes at elevations of about 6,900 to 7,600 feet. It formed in colluvium over sandstone. The average annual precipitation is about 18 inches, average annual air temperature is 42° F. and average frost-free period is about 80 days.

Typically the surface layer is very dark grayish brown channery loam about 6 inches thick. The subsoil is very dark grayish brown and dark grayish brown channery loam and sandy loam about 16 inches thick. The substratum is grayish brown extremely channery sandy loam about 16 inches thick and overlies hard sandstone.

Included in this unit are small areas of Rentsac soils and soils similar to 60 except they are greater than 40 inches to hard sandstone.

Permeability is moderate. Effective rooting depth is 40 inches or less. Available water capacity is moderate. Organic matter content in the surface layer is medium. Surface runoff is moderate to high and erosion hazard is moderate.

This soil is used for summer livestock grazing and mule deer winter habitat. This soil has a severe limitation for sanitary facility uses due to the slope (this includes sewage lagoons, septic tank absorption fields, and landfills). Local roads and streets have a moderate to severe limitation.

(Capability unit, VIIs; Range Site, Mountain Loam.)

(Capability unit, VIIs; Range Site, Mountain Loam.)

a moderate to severe limitation.

apsorption fields, and landslips). Local roads and afforest pave

vees are to the slope (fire includes sewage lagoons, septic tank

vinter pasture. This soil has a severe limitation for sanitary facility

This soil is used for summer livestock grazing and wild deer.

to high and erosion hazard is moderate.

content in the surface layer is medium. Surface runoff is moderate

inches or less. Available water capacity is moderate. Organic matter

Permeability is moderate. Effective rooting depth is 40

semistone.

soils similar to 63 except they are greater than 40 inches to hard

Included in this unit are small areas of Hendrec soils and

Cumberland Rubicon Hapludox loamy-skeletal mixed, SL to 63 percent

slopes (63)---This is a moderately deep, well drained soil on mountain

mountain sideslopes at elevations of about 2,600 to 3,200 feet. If

formed in colluvium over sandstone. The average annual precipitation

is about 58 inches, average annual air temperature is 45° F. and average

frost-free period is about 63 days.

Typically the surface layer is very dark grayish brown channery

loam about 3 inches thick. The subsoil is very dark grayish brown

and dark grayish brown channery loam and sandy loam about 32 inches

thick. The substratum is grayish brown extremely channery sandy

Conservation - applect of Jones

aridic Haploborolls loamy-skeletal, mixed

(1)

Tentative - subject to revision

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL SURVEY INTERPRETATIONS

RIO BLANCO Co., COLO.

KEYING ONLY		
RECORD NO.	CONTROL WORD	NO.
	MLRA	001
	STATE	011

MLRA(S) 48 | KIND OF UNIT SERIES | UNIT NAME 60 ARIDIC HAPLOBOROLL
STATE COLORADO | RECORD NO. | AUTHOR(S) WSH | DATE 7-75 | REVISED | UNIT MODIFIER

CLASSIFICATION AND BRIEF SOIL DESCRIPTION

SS 021
R 031 THE 60 SERIES CONSIST OF MODERATELY DEEP WELL DRAINED SOILS FORMED IN COLLUVIUM AND LOCAL ALLUVIUM ON MOUNTAIN SIDESLOPES OVER SANDSTONE. TYPICALLY THE SURFACE LAYER IS A CHANNERY LOAM ABOUT 6 INCHES THICK. THE SUBSOIL IS CHANNERY LOAM ABOUT 16 INCHES THICK. THE UNDERLYING LAYER IS EXTREMELY CHANNERY SANDY LOAM ABOUT 16 INCHES THICK AND OVERLIES SANDSTONE. AVERAGE ANNUAL PRECIPITATION IS ABOUT 18 INCHES AND THE FROST FREE SEASON IS ABOUT 80 DAYS. SLOPES ARE 12 TO 60 PERCENT

FOOTNOTE

ESTIMATED SOIL PROPERTIES

		DEPTH (IN.)	USDA TEXTURE	UNIFIED	AASHO	FRACT. >3 IN. (PCT)	PERCENT OF MATERIAL LESS THAN 3 IN. PASSING SIEVE 4	10	40	200	LIQUID LIMIT	PLASTICITY INDEX
PROP	041	0-6	CN-L	SM, ML	A-4, A-2	0-5	70-90	60-75	50-70	35-55	20-30	NP-5
	2	6-22	CN-L, CN-SL	SM	A-4, A-2	0-5	65-85	55-70	30-65	15-50	20-30	NP-5
	3	22-38	CNEX-SL	SM, GM	A-1	15-20	45-65	30-45	20-30	10-15	20-30	NP-5
	4	38	UWB									
	5											
	6											

		DEPTH (IN.)	PERMEABILITY (IN/HR)	AVAILABLE WATER CAPACITY (IN/IN)	SOIL REACTION (pH)	SALINITY (MMHOS/CM)	SHRINK-SWELL POTENTIAL	CORROSIVITY STEEL	CORROSIVITY CONCRETE	EROSION FACTORS K	T	WIND EROD. GROUP
PROP	051	SAME DEPTH AS ABOVE	0.6-2.0	0.14-0.16	7.9-8.4	—	LOW	HIGH	LOW	.28	2	5
	2		0.6-2.0	0.15-0.17	7.9-8.4	—	LOW	HIGH	LOW	.28		
	3		2.0-6.0	0.07-0.09	7.9-8.4	—	LOW	HIGH	LOW	.37		
	4											
	5											
	6											

		FLOODING FREQUENCY	DURATION	MONTHS	HIGH WATER TABLE DEPTH (FT)	KIND	MONTHS	CEMENTED PAN DEPTH (IN)	HARDNESS	BEDROCK DEPTH (IN)	HARDNESS	SUBSIDENCE INITIAL (IN)	TOTAL (IN)	HYD GRP	POTENTIAL FROST ACTION
PROP	061	NONE			>6			—		20-40	HARD	—		B	LOW

SANITARY FACILITIES

FOOTNOTES

SEPTIC	071	SEPTIC TANK ABSORPTION FIELDS	12-15%: SEVERE-DEPTH TO ROCK 15+%: SEVERE-SLOPE, DEPTH TO ROCK
LAGOON	081	SEWAGE LAGOONS	SEVERE-SLOPE, SMALL STONES, DEPTH TO ROCK, SEEPAGE
TRENCH	091	SANITARY LANDFILL (TRENCH)	12-25%: SEVERE-DEPTH TO ROCK, SEEPAGE 25+%: SEVERE-SLOPE, DEPTH TO ROCK, SEEPAGE
SANARE	101	SANITARY LANDFILL (AREA)	12-15%: SEVERE-SEEPAGE 15+%: SEVERE-SLOPE, SEEPAGE
COVER	111	DAILY COVER FOR LANDFILL	12-15%: POOR-SMALL STONES 15+%: POOR-SLOPE, SMALL STONES

COMMUNITY DEVELOPMENT

FOOTNOTES

EXCAV	121	SHALLOW EXCAVATIONS	12-15%: SEVERE-DEPTH TO ROCK 15+%: SEVERE-SLOPE, DEPTH TO ROCK
DWEL	131	DWELLINGS WITHOUT BASEMENTS	12-15%: SEVERE-DEPTH TO ROCK 15+%: SEVERE-SLOPE, DEPTH TO ROCK
DWEL	141	DWELLINGS WITH BASEMENTS	12-15%: SEVERE-DEPTH TO ROCK 15+%: SEVERE-SLOPE, DEPTH TO ROCK
BLDGS	151	SMALL COMMERCIAL BUILDINGS	SEVERE-SLOPE, DEPTH TO ROCK
ROADS	161	LOCAL ROADS AND STREETS	12-15%: MODERATE-DEPTH TO ROCK 15+%: SEVERE-SLOPE

REGIONAL INTERPRETATIONS

FOOTNOTES

ON	171	
REGION	181	

SOURCE MATERIAL

FOOTNOTES

FILL	191	ROADFILL	12-25%: POOR-THIN LAYER 25+%: POOR-SLOPE, THIN LAYER
SAND	201	SAND	UNSUITED
GRAVEL	211	GRAVEL	UNSUITED
SOIL	221	TOPSOIL	12-15%: POOR-SMALL STONES 15+%: POOR-SLOPE, SMALL STONES

WATER MANAGEMENT

FOOTNOTES

PONDRS	231	POND RESERVOIR AREA	DEPTH TO ROCK, SLOPE, SEEPAGE
DIKES	241	EMBANKMENTS DIKES AND LEVEES	THIN LAYER, SEEPAGE
PONDAQ	251	EXCAVATED PONDS AQUIFER FED	NO WATER
DRAIN	261	DRAINAGE	
IRRIG	271	IRRIGATION	
TERRAC	281	TERRACES AND DIVERSIONS	DEPTH TO ROCK, SLOPE
WATERW	291	GRASSED WATERWAYS	SLOPE

SOIL SURVEY INTERPRETATIONS

Tentative - subject to revision

UNIT NAME: RIO BLANCO CO. 60 ARIDIC HAPLOBOROLL (2)
UNIT MODIFIER:

KEYING ONLY — RECORD NO. / CONTROL NO.

CAMP AREAS (301)

FOOTNOTE:
- 12-15%: MODERATE - SLOPE, SMALL STONES
- 15+%: SEVERE - SLOPE

PICNIC AREAS (311)

FOOTNOTE:
- 12-15%: MODERATE - SLOPE, SMALL STONES
- 15+%: SEVERE - SLOPE

RECREATION

KEYING ONLY

PLAYGROUNDS (PLAYGD 321)

FOOTNOTE:
- SEVERE - SLOPE

PATHS AND TRAILS (PATHS 331)

FOOTNOTE:
- 12-15%: SLIGHT
- 15-25%: MODERATE - SLOPE
- 25+%: SEVERE - SLOPE

CAPABILITY AND PREDICTED YIELDS - CROPS AND PASTURE (HIGH LEVEL MANAGEMENT)

CROPHD 451

CROPS	CLASS-DETERMINING PHASE	CAPABILITY NIRR	CAPABILITY IRR.	NIRR	IRR.	NIRR	IRR.	NIRR	IRR.	NIRR	IRR.	NIRR	IRR.	NIRR	IRR.	NIRR	IRR.
341	ALL	6E															
351																	

WOODLAND SUITABILITY

WOODS	CLASS-DETERMINING PHASE	ORD SYM	MANAGEMENT PROBLEMS: EROSION HAZARD	EQUIP. LIMIT	SEEDLING MORT'Y.	WINDTH. HAZARD	PLANT COMPET.	POTENTIAL PRODUCTIVITY: IMPORTANT TREES	SITE INDEX	TREES TO PLANT
361								NONE		
371										

WIND BREAKS

WINDBK	CLASS-DETERMINING PHASE	SPECIES	HT	SPECIES	HT	SPECIES	HT	SPECIES	HT
381	ALL	NONE							

WILDLIFE HABITAT SUITABILITY

WILDLF	CLASS-DETERMINING PHASE	POTENTIAL FOR HABITAT ELEMENTS: GRAIN & SEED	GRASS & LEGUME	WILD HERB.	HARDWD TREES	CONIFER PLANTS	SHRUBS	WETLAND PLANTS	SHALLOW WATER	POTENTIAL AS HABITAT FOR: OPENLAND WILDLIFE	WOODLAND WILDLIFE	WETLAND WILDLIFE	RANGELAND WILDLIFE
391	ALL	POOR	POOR	FAIR	—	—	GOOD	V. POOR	V. POOR	POOR	—	V. POOR	FAIR

POTENTIAL NATIVE PLANT COMMUNITY (RANGELAND OR FOREST UNDERSTORY VEGETATION)

PHASE 401

PLANT	COMMON PLANT NAME	PLANT SYMBOL (NLSPN)	PERCENTAGE COMPOSITION (DRY WEIGHT) BY CLASS DETERMINING PHASE: ALL
411	BLUEBUNCH WHEATGRASS	AGSP	20
2	MUTTON GRASS	POFE	5
3	SLENDER WHEATGRASS	AGTR	5
4	NEEDLE GRASSES	STIPA	10
5	WESTERN WHEATGRASS	AGSM	15
6	OTHER PERENNIAL GRASSES	PPGG	5
7	ROCK MOUNTAIN PENSTEMON	PEST2	2
8	SILVERY LUPINE	LUAR3	2
9	MOUNTAIN BLUEBELLS	MEC13	1
421	OTHER PERENNIAL FORBS	PPFF	5
2	BIG SAGEBRUSH	ARTR2	15
3	SERVICEBERRY	AMAL2	5
4	SNOWBERRY	SYOR2	5
5	OTHER SHRUBS	SSSS	5

PRODUC 431

POTENTIAL PRODUCTION (LBS./AC. DRY WT):	ALL
FAVORABLE YEARS	1800
NORMAL YEARS	1350
UNFAVORABLE YEARS	900

FOOTNOTES

NOTES 441

SYM.	
1	RANGE SITE IS DEEP LOAM

| | | |

FORELLE SERIES

The Forelle series consists of deep, well drained soils that formed in calcareous aeolian sediments. Forelle soils are on uplands and terrace slopes and have slopes of 3 to 15 percent. Mean annual precipitation is about 14 to 18 inches and mean annual air temperature is about 42 degrees F.

Forelle soils are similar to the Piceance and Yamac soils. Piceance soils have a lithic contact less than 40 inches. Yamac soils do not have an argillic horizon.

Typical pedon of Forelle loam, 3 to 25 percent slopes, about 0.3 mile east and 0.2 mile south of the northwest corner of Section 30, T1N, R93W.

Tentative - subject to revision

A1 0-4"--Brown (10YR 5/3) loam, dark brown (10YR 3/3) moist; moderate fine granular structure; soft, very friable; noncalcareous; mildly alkaline; clear smooth boundary.

B2t 4-16"--Brown (7.5YR 5/4) light clay loam, brown (10YR 4/3) moist; moderate medium prismatic structure parting to moderate medium subangular blocks: hard, friable; few thin clay films on ped faces; noncalcareous; mildly alkaline; clear smooth boundary.

B3ca 16-19"--Pale brown (10YR 6/3) loam, brown (10YR 4/3) moist; weak medium and coarse subangular blocky structure; slightly hard, friable; calcareous; some visible secondary calcium carbonate occuring as lime seams and concretions; moderately alkaline; clear smooth boundary.

Cca 10-60"--Very pale brown (10YR 7/3) loam, brown (10YR 5/3) moist; massive structure; slightly hard, friable; strongly calcareous; visible secondary calcium carbonate occuring as seams and concretions; moderately alkaline.

The A horizon ranges between silt loam, loam, or very fine sandy loam textures. The B horizon ranges from loam to silty clay loam in texture. Depth to the strong calcium carbonate zone ranges from 12 to 20 inches. Rock fragments are usually less than 5 percent but range from 0 to 15 percent.

Reaction ranges from mildly alkaline in the surface to moderately alkaline in the substratum.

alkaline in the environment.

Reaction ranges from mildly alkaline in the entire to moderately

but range from 0 to 15 percent.

from 15 to 50 inches. Rock fragments are usually less than 5 percent

loam in texture. Depth to the strong calcium carbonate zone ranges

sandy loam texture. The B horizon ranges from loam to silty clay

The A horizon ranges between silt loam, loam, or very fine

sesame and concretions; moderately alkaline.

carbonate; variable secondary calcium carbonate occurring as

moist; massive structure; slightly hard, friable; strongly

CcA 10-60"--Very pale brown (10YR 7/3) loam, pale brown (10YR 6/3)

alkaline; clear smooth boundary.

carbonate occurring as fine sesame and concretions; moderately

hard, friable; calcareous; some variable secondary calcium

very medium and coarse subangular blocky structure; slightly

BCca 16-28"--Pale brown (10YR 6/3) loam, brown (10YR 4/3) moist;

alkaline; clear smooth boundary.

fine dark films on ped faces; noncalcareous; slightly

moderate medium subangular blocks; hard, friable; few

moist; moderate medium prismatic structure parting to

B2t 4-16"--Brown (7.5YR 5/4) light clay loam, brown (10YR 4/3)

noncalcareous; slightly alkaline; clear smooth boundary.

moderate fine granular structure; soft, very friable;

A1 0-4"--Brown (10YR 5/3) loam, dark brown (10YR 4/3) moist;

71C--Forelle loam, 3 to 8 percent slopes.--This is a deep, well drained soil on uplands and terrace slopes at elevations of 6,000 to 7,200 feet. It formed in fine textured aeolian deposits. The average annual precipitation is 14 to 18 inches, average annual air temperature is 42 degrees F., and average frost-free period is 80 to 105 days.

Typically the surface layer is a brown loam about 4 inches thick. The subsoil is a brown light clay loam about 12 inches thick. The substratum is a very pale brown loam extending to over 60 inches. There is a layer of strong lime accumulation in the lower subsoil and substratum.

Included in this unit are small areas of Yamac loam and Piceance fine sandy loam both having slopes of 3 to 8 percent.

Permeability is moderate. Effective rooting depth is 60 inches or more. Available water capacity is medium. Surface runoff is slow and erosion hazard slight.

This soil is used for dryland farming, livestock grazing, and wildlife habitat.

The Forelle soils are well suited for community development, sanitary facilities, and recreational areas. This soil is a good source for topsoil and is fair for road fill material.

(Capability Unit, VIe; Range site, Rolling Loam.)

(Carbonliff Unit, Rte. 2, Range Rife, Bollings Loam.)

Included in this unit are small areas of Jamac loam and Princeton fine sandy loam both having slopes of 3 to 8 percent.

Permeability is moderate. Effective rooting depth is 60 inches or more. Available water capacity is medium. Surface runoff is slow and erosion hazard slight.

Most is used for cultivated crops, hayland, and pasture. Suitable for small grain, corsn, soybeans, and vegetable crops.

The Torello soils are well suited for community development, sanitary facilities, and recreational areas. Both soil is a good source for topsoil and is fair for road fill material.

JrC--Torello loam, 3 to 8 percent slopes.--This is a deep, well drained soil on uplands and terrace slopes at elevations of 2,000 to 2,500 feet. It formed in fine textured basalt deposits. The average annual precipitation is 14 to 18 inches, average annual air temperature is 54 degrees F., and average frost-free period is 80 to 100 days.

Typically the surface layer is a brown loam about 4 inches thick. The subsoil is a brown light clay loam about 12 inches thick. The subsoil is a very hard brown heavy clay extending to over 60 inches. There is a layer of strong lime accumulation in the lower subsoil and sub-

71D--Forelle loam, 8 to 15 percent slopes.--This is a deep, well drained soil on uplands and terrace slopes at elevations of 6,000 to 7,200 feet. It formed in fine textured aeolian deposits. The average annual precipitation is 14 to 18 inches, average annual air temperature is 42 degrees F., and average frost-free period is 80 to 105 days.

Typically the surface layer is a brown loam about 4 inches thick. The subsoil is a brown light clay loam about 12 inches thick. The substratum is a very pale brown loam extending to over 60 inches. There is a layer of strong lime accumulation in the lower subsoil and substratum.

Included in this unit are small areas of Yamac loam and Piceance fine sandy loam both having slopes of 8 to 15 percent.

Permeability is moderate. Effective rooting depth is 60 inches or more. Available water capacity is high. Organic matter content in the surface is medium. Surface runoff is slow to medium and erosion hazard is slight.

This soil is used for dryland farming, livestock grazing, and wildlife habitat.

The Forelle soils are well suited for community development, sanitary facilities, and recreational areas. This soil is a good source for topsoil and is fair for road fill material.

(Capability Unit, VIe; Range site, Rolling Loam.)

(Cherephilly loft, VIe: Kenge site, Hopping Loam.)

soil and is fair for road fill material.

Textifies, and recreational class. This soil is a good source for pob-

The Forella soils are well suited for community development, sanitary

fill material.

This soil is used for civil engineering, grassrock planting, and wild-

erness park areas.

The Forella soils are well suited for community development, sanitary

fill material.

This soil is used for civil engineering, grassrock planting, and wild-

erness park areas.

Permeability is moderate. Effective rooting depth is 60 inches

or more. Available water capacity is high. Organic matter content is

the surface is medium. Surface runoff is slow to medium and erosion

hazard is slight.

TLD--Forella loam, 8 to 15 percent slopes.--This is a deep, well

drained soil on uplands and terrace slopes at elevations of 2,000 to

7,500 feet. It formed in fine textured alluvial deposits. The average

annual precipitation is 14 to 18 inches, average annual air temperature

is 45 degrees F., and average frost-free period is 80 to 100 days.

Typically the surface layer is a brown loam about 4 inches thick.

The subsoil is a brown light clay loam about 15 inches thick. The sub-

stratum is a very hard brown loam extending to over 60 inches. There

is a layer of strong lime accumulation in the lower subsoil and substratum.

Included in this unit are small areas of Xemac loam and Tarcerce

fine sandy loam both having slopes of 8 to 15 percent.

Territorial - applied to recreation

SOILS-5
MAY 1972
CODE SOILS-12

(1) Tentative - subject to revision

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL SURVEY INTERPRETATIONS

RIO BLANCO CO., COLO.

KEYING ONLY

ORD O.	CONTROL WORD	NO.
	MLRA	001
	STATE	011

MLRA(S) 78 | KIND OF UNIT SERIES | UNIT NAME TI (FORELLE)

STATE COLORADO | RECORD NO. | AUTHOR(S) DKA | DATE 2/75 | REVISED | UNIT MODIFIER

CLASSIFICATION AND BRIEF SOIL DESCRIPTION

021 THE FORELLE SERIES CONSISTS OF DEEP WELL DRAINED SOILS FORMED IN CALCAREOUS LOAMY SEDIMENTS ON UPLANDS AND TERRACES. SLOPES
031 2 TYPICALLY THE SURFACE LAYER IS A LOAM ABOUT 4 INCHES THICK. THE SUBSOIL IS A LIGHT CLAY LOAM ABOUT 12 INCHES THICK.
3 THE UNDERLYING LAYER IS CLAY LOAM TO A DEPTH OF 60 INCHES. ELEVATION IS 6000 TO 7200 FEET. NATURAL VEGETATION IS GRASS, FORBS AND
4 SCATTERED SAGE. AVERAGE ANNUAL PRECIPITATION IS ABOUT 15 TO 20 INCHES. MEAN ANNUAL AIR TEMPERATURE IS ABOUT 44 DEGREES F.
5 AND FROST FREE SEASON IS ABOUT 80 TO 90 DAYS. SLOPES ARE 3 TO 25 PERCENT.

ESTIMATED SOIL PROPERTIES

	FOOTNOTE	DEPTH (IN.)	USDA TEXTURE	UNIFIED	AASHO	FRACT. >3 IN. (PCT)	PERCENT OF MATERIAL LESS THAN 3 IN. PASSING SIEVE 4	10	40	200	LIQUID LIMIT	PLASTICITY INDEX
PROP 041	1	0-4	L	ML, CL	A-4	0	95-100	90-100	75-95	55-75	20-30	5-10
2		4-16	CL	CL	A-6	0	95-100	90-100	80-100	65-80	25-40	15-25
3		16-60	L	ML, CL	A-4, A-6	0	95-100	90-100	75-95	55-75	20-35	5-15
4												
5												
6												

	DEPTH (IN.)	PERMEABILITY (IN/HR)	AVAILABLE WATER CAPACITY (IN/IN)	SOIL REACTION (pH)	SALINITY (MMHOS/CM)	SHRINK-SWELL POTENTIAL	CORROSIVITY STEEL	CORROSIVITY CONCRETE	EROSION FACTORS K	EROSION FACTORS T	WIND EROD. GROUP
PROP 051		0.6-2.0	0.16-0.18	7.4-7.8	—	LOW	MODERATE	LOW	.43	5	
2	SAME	0.6-2.0	0.19-0.21	7.4-7.8	—	LOW	MODERATE	LOW	.28		
3	DEPTH	0.6-2.0	0.16-0.18	7.8-8.4	—	LOW	HIGH	LOW	.32		
4	AS										
5	ABOVE										
6											

	FLOODING FREQUENCY	FLOODING DURATION	FLOODING MONTHS	HIGH WATER TABLE DEPTH (FT)	HIGH WATER TABLE KIND	HIGH WATER TABLE MONTHS	CEMENTED PAN DEPTH (IN)	CEMENTED PAN HARDNESS	BEDROCK DEPTH (IN)	BEDROCK HARDNESS	SUBSIDENCE INITIAL (IN)	SUBSIDENCE TOTAL (IN)	HYD GRP	POTENTIAL FROST ACTION
PROP 061	NONE			>6			—		>60		—		B	LOW

	FOOTNOTES	SANITARY FACILITIES
SEPTIC 071	SEPTIC TANK ABSORPTION FIELDS	3-15%: MODERATE - PERCS SLOWLY 15%+: SEVERE - SLOPE
LAGOON 081	SEWAGE LAGOONS	3-7%: MODERATE - PERCS SLOWLY, SLOPE 7%+: SEVERE - SLOPE
091	SANITARY LANDFILL (TRENCH)	3-15%: SLIGHT 15-25%: MODERATE - SLOPE
SANARE 101	SANITARY LANDFILL (AREA)	3-8%: SLIGHT 8-15%: MODERATE - SLOPE 15%+: SEVERE
COVER 111	DAILY COVER FOR LANDFILL	3-8%: GOOD 8-15%: FAIR - SLOPE 15%+: POOR - SLOPE

	FOOTNOTES	COMMUNITY DEVELOPMENT
EXCAV 121	SHALLOW EXCAVATIONS	3-8%: SLIGHT 8-15%: MODERATE - SLOPE 15%+ SEVERE - SLOPE
DWEL 131	DWELLINGS WITHOUT BASEMENTS	3-8%: SLIGHT 8-15%: MODERATE - SLOPE 15%+: SEVERE - SLOPE
DWEL 141	DWELLINGS WITH BASEMENTS	3-8%: SLIGHT 8-15%: MODERATE - SLOPE 15%+ SEVERE - SLOPE
BLDGS 151	SMALL COMMERCIAL BUILDINGS	3-4%: SLIGHT 4-8%: MODERATE - SLOPE 8%+ : SEVERE - SLOPE
ROADS 161	LOCAL ROADS AND STREETS	3-15%: MODERATE - LOW STRENGTH 15%+: SEVERE - SLOPE

	FOOTNOTES	REGIONAL INTERPRETATIONS
R[illegible] 171		
REGION 181		

KEYING ONLY

	FOOTNOTES	SOURCE MATERIAL
FILL 191	ROADFILL	FAIR-LOW STRENGTH
SAND 201	SAND	UNSUITED
GRAVEL 211	GRAVEL	UNSUITED
SOIL 221	TOPSOIL	3-8%: GOOD 8-15%: FAIR 15%+: POOR

	FOOTNOTES	WATER MANAGEMENT
PONDRS 231	POND RESERVOIR AREA	SEEPAGE, SLOPE
DIKES 241	EMBANKMENTS DIKES AND LEVEES	LOW STRENGTH, SEEPAGE
PONDAQ 251	EXCAVATED PONDS AQUIFER FED	NO WATER
DRAIN 261	DRAINAGE	FAVORABLE
IRRIG 271	IRRIGATION	SLOPE
TERRAC 281	TERRACES AND DIVERSIONS	SLOPE
WATERW 291	GRASSED WATERWAYS	SLOPE,

SOIL SURVEY INTERPRETATIONS

Tentative – subject to revision

UNIT NAME: 71 (FORE II E) (2)
UNIT MODIFIER:

RECREATION

KEYING ONLY		FOOTNOTE	KEYING ONLY		FOOTNOTE
CAMP AREAS 301		3-8%: SLIGHT 8-15%: MODERATE - SLOPE 15%+: SEVERE - SLOPE	PLAYGD 321	PLAYGROUNDS	3-6%: MODERATE - SLOPE 6%+: SEVERE - SLOPE
PICNIC AREAS 311		3-8%: SLIGHT 8-15%: MODERATE - SLOPE 15%+: SEVERE - SLOPE	PATHS 331	PATHS AND TRAILS	3-15%: SLIGHT 15-25%: MODERATE - SLOPE

CAPABILITY AND PREDICTED YIELDS - CROPS AND PASTURE (HIGH LEVEL MANAGEMENT)

FOOTNOTE	CLASS-DETERMINING PHASE	CAPABILITY NIRR	CAPABILITY IRR.														
CROPHD 451																	
CROPS 341	3-8%	4E	3E														
	8-15%	4E	4E														
351																	

WOODLAND SUITABILITY

FOOTNOTE	CLASS-DETERMINING PHASE	ORD SYM	MANAGEMENT PROBLEMS: EROSION HAZARD	EQUIP. LIMIT	SEEDLING MORT'Y.	WINDTH. HAZARD	PLANT COMPET.	POTENTIAL PRODUCTIVITY: IMPORTANT TREES	SITE INDEX	TREES TO PLANT
WOODS 361								NONE		
371										

WIND BREAKS

FOOTNOTE	CLASS-DETERMINING PHASE	SPECIES	HT	SPECIES	HT	SPECIES	HT	SPECIES	HT
WINDBK 381		NONE							

WILDLIFE HABITAT SUITABILITY

FOOTNOTE	CLASS-DETERMINING PHASE	POTENTIAL FOR HABITAT ELEMENTS: GRAIN & SEED	GRASS & LEGUME	WILD HERB.	HARDWD TREES	CONIFER PLANTS	SHRUBS	WETLAND PLANTS	SHALLOW WATER	POTENTIAL AS HABITAT FOR: OPENLAND WILDLIFE	WOODLAND WILDLIFE	WETLAND WILDLIFE	RANGELAND WILDLIFE
WILDLF 391	ALL	FAIR	GOOD	GOOD	—	—	FAIR	V POOR	V POOR	GOOD	—	V POOR	FAIR

POTENTIAL NATIVE PLANT COMMUNITY (RANGELAND OR FOREST UNDERSTORY VEGETATION)

FOOTNOTE	COMMON PLANT NAME	PLANT SYMBOL (NLSPN)	PERCENTAGE COMPOSITION (DRY WEIGHT) BY CLASS DETERMINING PHASE: ALL
PHASE 401			
PLANT 411	BIG SAGE BRUSH	ARTR2	15
1	RABBIT BRUSH	CHRYS9	5
	DWARF RABBITBRUSH	CHDE2	5
	WESTERN WHEATGRASS	AGSM	20
	NEEDLE AND THREAD	STCO4	5
	STREAMBANK WHEATGRASS	AGRI	20
	JUNEGRA--	KOCR	5
	PHLOX	PHLOX	5
	WINTERFAT	EULA5	3
421	LUPINE	LUPIN	2
	OTHER PERENNIAL GRASSES	PPGG	5
	OTHER PERENNIAL FORBS	PPFF	8
	SKELETON LOCO	ASAS2	2
	OTHER SHRUBS	SSSS	2
PRODUC 431	POTENTIAL PRODUCTION (LBS./AC. DRY WT): FAVORABLE YEARS		1200
	NORMAL YEARS		950
	UNFAVORABLE YEARS		700

NOTES 441	SYM.	FOOTNOTES
	1	RANGE SITE IS CLAYEY FOOTHILLS

COMMON SIGNAL NAME	SIGNAL SYMBOL (MCSyN)	POTENTIAL MASTER SIGNAL CONTRIBUTING CAUSE OR FORCED DIFFERENTIAL ABSENCE

CAUSE DETERMINING PHASE	CAUSE CODE	EFFECT CODE	HAZARD	TIMED HAZARD	SIGNAL CONFLICT	PHASE	SIGNAL DELAY	SIGNAL RELEASE	SIGNAL CONFLICT	SIGNAL ACCOMPANIMENT	SIGNAL ABSENCE	SIGNAL MAINTENANCE

CAUSE DETERMINING PHASE	CAUSE CODE	HAZARD CODE	FINAL EFFECT	MINOR EFFECT	HAZARD MAINTENANCE	CONFLICT SIGNAL	POTENTIAL MINOR EFFECTS	INDEX NO.	TARGET TO SIGNAL

CAUSE DETERMINING PHASE	CAUSE CODE																

TRAFFIC AREAS		
CARS AREAS		

GLENDIVE SERIES

The Glendive series consists of deep, well drained soils formed in alluvial materials. Glendive soils are in valley positions and have slopes of 2 to 9 percent. Mean annual precipitation is about 14 inches and mean annual air temperature is about 43 degrees F.

Glendive soils are near the Hagga, Havre, and Hanly soils. Hagga soils are poorly drained. Hanly soils have a sandy control section. Havre soils are finer textured than the Glendive soils.

Typical pedon of Glendive fine sandy loam, 2 to 9 percent slopes, about 100 yards south of the Ryan Gulch Road and 50 feet east of the fence in the NE¼ NE¼ Section 12, T2S, R98W.

CLEMENTAK SERIES

The Clendike series consists of deep, well drained soils formed in alluvial materials. Clendike soils are in valley positions and have slopes of 5 to 9 percent. Mean annual precipitation is about 14 inches and mean annual air temperature is about 64 degrees F.

Clendike soils are near the Hagga, Heave, and Manly soils. Hagga soils are poorly drained. Manly soils have a sandy control section. Heave soils are finer textured than the Clendike soils.

Typical pedon of Clendike fine sandy loam, 5 to 9 percent slopes, about 100 yards south of the View Cache Road and 20 feet east of the fence in the NE¼ NE¼ section 15, T5S, R6W.

A1 0-12"--Pale brown (10YR 6/3) fine sandy loam, brown (10YR 5/3) moist; moderate coarse platy parting to weak fine granular structure; soft, friable, slightly sticky, slightly plastic; moderately alkaline (pH 8.2); clear wavy boundary.

C1 12-39"--Pale brown (10YR 6/3) stratified loam and sandy loam, brown (10YR 4/3) moist; weak to medium moderate subangular blocky structure parting to weak to medium fine subangular blocky structure; slightly hard, friable, slightly sticky, slightly plastic; strongly alkaline (pH 8.8); clear wavy boundary.

C2 39-78"--Highly stratified loams, sandy loams, and loamy sands; strongly alkaline (pH 8.6).

Coarse fragments, one-fourth to three-fourths inch in diameter, make up 5 to 30 percent of the solum. Reaction ranges from moderately to strongly alkaline.

The thickness of the strata vary with the past intensity of storms.

atoms.

The thickness of the strata varies with the heat intensity to

to strongly alkaline.

make up 2 to 30 percent of the soils. Reaction ranges from moderately

Coarse fragments, one-inch to three-inch size in diameter,

strongly alkaline (pH 8.4).

41-Glendive fine sandy loam, 2 to 15 percent slopes.--This is a deep, well drained soil on valley bottoms at 5,900 to 7,600 feet. It formed in mixed alluvial materials, mainly derived from sedimentary rocks. The average annual precipitation is 14 to 18 inches, average annual air temperature is about 43 degrees F., and average frost-free period is 80 to 105 days.

Typically the surface layer is a pale brown fine sandy loam about 12 inches thick. The substratum is stratified loams, sandy loams, and loamy sands to a depth of over 60 inches.

Included in this unit are small areas of Hanly gravelly loamy fine sand, Havre loam, and Hagga loam all having slopes of 2 to 9 percent slopes.

Permeability is moderate. Effective rooting depth is 60 inches or more. Available water capacity is moderate. Organic matter content in the surface is medium. Surface runoff is slow and erosion hazard slight.

This soil is used for irrigated pasture, livestock grazing, and wildlife habitat.

Rare flooding would limit the use of Glendive soils for community development and sanitary facilities. This soil is a good source for road fill material. Rare flooding will limit the use of this soil for intensive recreational areas.

(Capability Unit, IIIe; Range Site, Foothill Swale.)

(Campbellton Unit, III: Range site, Foothill Swale.)

TECTORIC ORDER.

Fig. material. Farm flooding will limit the use of this soil for intensive

development and sanitary facilities. This soil is a good source for road

fill material. Farm flooding would limit the use of dikeridge soils for community

wildlife habitat.

This soil is used for rangeland grazing, livestock raising, and

the native is medium. Surface runoff is slow and erosion hazard slight.

Permeability is moderate. Effective rooting depth is 60 inches or

more. Available water capacity is moderate. Organic matter content is

about 1 percent, and hardness loam all parent slopes of 5 to 9 percent slopes.

Included in this unit are small areas of Hardy gravelly loamy fine

loamy sands to a depth of over 60 inches.

SI inches depth. The substratum is stratified loams, sandy loams, and

fluvially the surface layer is a hard crust fine sandy loam about

to 101 days.

temperature is about 44 degrees F., and average frost-free period is 80

to 110 days.

average annual precipitation is 14 to 18 inches, average annual air

in mixed alluvial materials, mainly derived from sedimentary rocks. The

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14-Gravelly fine sandy loam, 5 to 12 percent slopes.--Data is a deep,

well drained soil on valley positions at 2,900 to 3,600 feet. It formed

Tentative - subject to revision

SOILS 5
MAY 1972
CODE SOILS-12

Tentative - Subject to revision

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

(1)

Ustic Torrifluvent coarse-loamy, mixed (calcareous), frigid

SOIL SURVEY INTERPRETATIONS

KEYING ONLY: RECORD NO. | CONTROL: WORD — MLRA 001; STATE 011

MLRA(S) 49 | KIND OF UNIT SERIES | UNIT NAME 41 RIO BLANCO CO (GLENDIVE)

STATE COLORADO | RECORD NO. | AUTHOR(S) WSH | DATE 1-75 | REVISED | UNIT MODIFIER

CLASSIFICATION AND BRIEF SOIL DESCRIPTION

071

031 THE 41 SERIES CONSIST OF DEEP, WELL DRAINED SOILS FORMED IN ALLUVIUM ON ALLUVIAL FANS AND FLOODPLAINS. TYPICALLY
2 THE SURFACE LAYER IS A FINE SANDY LOAM ABOUT 12 INCHES THICK. THE SUBSOIL IS STRATIFIED LOAM AND SANDY LOAM
3 ABOUT 27 INCHES THICK. THE UNDERLYING LAYER IS A SANDY LOAM STRATIFIED WITH LOAM AND LOAMY SAND THAT
4 EXTENDS TO 60 INCHES OR MORE. NATURAL VEGETATION IS MOSTLY SAGEBRUSH AND GRASSES. AVERAGE ANNUAL PRECIPITATION
5 IS ABOUT 16 INCHES AND THE FROST FREE SEASON IS ABOUT 90 DAYS. SLOPES ARE 2 TO 9 PERCENT.

ESTIMATED SOIL PROPERTIES

	FOOTNOTE	DEPTH (IN.)	USDA TEXTURE	UNIFIED	AASHO	FRACT. >3 IN. (PCT)	PERCENT OF MATERIAL LESS THAN 3 IN. PASSING SIEVE 4	10	40	200	LIQUID LIMIT	PLASTICITY INDEX
PROP 041		0-12	FSL, CN-FSL	SC, SM	A-2, A-4	0	90-95	65-95	45-80	25-50	15-25	10-20
2		12-39	SR-FSL-L, CN-FSL, CN-L	SC, SM	A-2, A-4	0	80-95	55-95	40-90	20-70	15-25	10-20
3		39-60	SR-SL-L-LS, CN-SL-CN-LS	SM	A-2	0	60-90	40-90	20-70	5-35	15-20	NP-10
4												
5												
6												

	DEPTH (IN.)	PERMEABILITY (IN/HR)	AVAILABLE WATER CAPACITY (IN/IN)	SOIL REACTION (pH)	SALINITY (MMHOS/CM)	SHRINK-SWELL POTENTIAL	CORROSIVITY STEEL	CORROSIVITY CONCRETE	EROSION FACTORS K	EROSION FACTORS T	WIND EROD. GROUP
PROP 051		2.0-6.0	0.13-0.15	8.2	—	LOW	HIGH	LOW	.24	5	3
2	SAME DEPTH AS ABOVE	2.0-6.0	0.13-0.15	8.8	—	LOW	HIGH	LOW	.24		
3		6.0-20	0.07-0.09	8.6	—	LOW	HIGH	LOW	.28		
4											
5											
6											

	FLOODING FREQUENCY	FLOODING DURATION	FLOODING MONTHS	HIGH WATER TABLE DEPTH (FT)	HIGH WATER TABLE KIND	HIGH WATER TABLE MONTHS	CEMENTED PAN DEPTH (IN)	CEMENTED PAN HARDNESS	BEDROCK DEPTH (IN)	BEDROCK HARDNESS	SUBSIDENCE INITIAL (IN)	SUBSIDENCE TOTAL (IN)	HYD GRP	POTENTIAL FROST ACTION
PROP 061	RARE	V. BRIEF	MAY-SEPT	>6			—		>60		—		B	LOW

SANITARY FACILITIES

	FOOTNOTES	SANITARY FACILITIES
SEPTIC 071	SEPTIC TANK ABSORPTION FIELDS	2-8%: MODERATE - FLOODS 8+% MODERATE - SLOPE, FLOODS
LAGOON 081	SEWAGE LAGOONS	2-7%: SEVERE - SEEPAGE 7+%: SEVERE - SLOPE, SEEPAGE
CH 091	SANITARY LANDFILL (TRENCH)	SEVERE - SEEPAGE
SANARE 101	SANITARY LANDFILL (AREA)	SEVERE - SEEPAGE
COVER 111	DAILY COVER FOR LANDFILL	2-8%: FAIR — SMALL STONES 8+%: FAIR — SLOPE, SMALL STONES

COMMUNITY DEVELOPMENT

	FOOTNOTES	COMMUNITY DEVELOPMENT
EXCAV 121	SHALLOW EXCAVATIONS	2-8%: MODERATE - FLOODS 8+%: MODERATE - SLOPE, FLOODS
DWEL 131	DWELLINGS WITHOUT BASEMENTS	SEVERE - FLOODS
DWEL 141	DWELLINGS WITH BASEMENTS	SEVERE - FLOODS
BLDGS 151	SMALL COMMERCIAL BUILDINGS	SEVERE - FLOODS
ROADS 161	LOCAL ROADS AND STREETS	2-8%: MODERATE - FLOODS 8+%: MODERATE - SLOPE, FLOODS

REGIONAL INTERPRETATIONS

	FOOTNOTES	REGIONAL INTERPRETATIONS
ON 171		
REGION 181		

SOURCE MATERIAL

KEYING ONLY	FOOTNOTES	SOURCE MATERIAL
FILL 191	ROADFILL	GOOD
SAND 201	SAND	POOR
GRAVEL 211	GRAVEL	UNSUITED
SOIL 221	TOPSOIL	2-8%: FAIR - SMALL STONES 8+%: FAIR - SLOPE, SMALL STONES

WATER MANAGEMENT

	FOOTNOTES	WATER MANAGEMENT
PONDRS 231	POND RESERVOIR AREA	SEEPAGE
DIKES 241	EMBANKMENTS DIKES AND LEVEES	SEEPAGE, ERODES EASILY
PONDAQ 251	EXCAVATED PONDS AQUIFER FED	NO WATER
DRAIN 261	DRAINAGE	FLOODS
IRRIG 271	IRRIGATION	ERODES EASILY, FLOODS,
TERRAC 281	TERRACES AND DIVERSIONS	ERODES EASILY
WATERW 291	GRASSED WATERWAYS	ERODES EASILY

SOIL SURVEY INTERPRETATIONS

Tentative - subject to revision

KEYING ONLY: RECORD NO. | CONTROL NO.

UNIT NAME: 41 RIO BLANCO CO. (GLENDIVE) (2)
UNIT MODIFIER:

RECREATION

KEYING ONLY			FOOTNOTE
CAMP AREAS	301	SEVERE - FLOODS	
PICNIC AREAS	311	2-8%: MODERATE - FLOODS, DUSTY 8+%: MODERATE - SLOPE, FLOODS, DUSTY	
PLAYGROUNDS	321	2-6%: MODERATE - FLOODS, DUSTY, SMALL STONES 6+%: SEVERE - SLOPE	
PATHS AND TRAILS	331	MODERATE - DUSTY	

CAPABILITY AND PREDICTED YIELDS - CROPS AND PASTURE (HIGH LEVEL MANAGEMENT)

FOOTNOTE

KEYING ONLY	CLASS-DETERMINING PHASE	CAPABILITY NIRR	CAPABILITY IRR.	GRASS HAY (TONS) NIRR	GRASS HAY (TONS) IRR.	NIRR	IRR.	NIRR	IRR.	NIRR	IRR.	NIRR	IRR.	NIRR	IRR.	NIRR	IRR.
CROPHD 451																	
CROPS 341	ALL	3E		1.25													
351																	

WOODLAND SUITABILITY

FOOTNOTE

KEYING ONLY	CLASS-DETERMINING PHASE	ORD SYM	MANAGEMENT PROBLEMS: EROSION HAZARD	EQUIP. LIMIT	SEEDLING MORT'Y.	WINDTH. HAZARD	PLANT COMPET.	POTENTIAL PRODUCTIVITY: IMPORTANT TREES	SITE INDEX	TREES TO PLANT
WOODS 361								NONE		
371										

WIND BREAKS

FOOTNOTE

KEYING ONLY	CLASS-DETERMINING PHASE	SPECIES	HT	SPECIES	HT	SPECIES	HT	SPECIES	HT
WINDBK 381		NONE							

WILDLIFE HABITAT SUITABILITY

FOOTNOTE

KEYING ONLY	CLASS-DETERMINING PHASE	POTENTIAL FOR HABITAT ELEMENTS: GRAIN & SEED	GRASS & LEGUME	WILD HERB.	HARDWD TREES	CONIFER PLANTS	SHRUBS	WETLAND PLANTS	SHALLOW WATER	POTENTIAL AS HABITAT FOR: OPENLAND WILDLIFE	WOODLAND WILDLIFE	WETLAND WILDLIFE	RANGELAND WILDLIFE
WILDLF 391		FAIR	FAIR	FAIR	—	—	GOOD	V. POOR	V. POOR	FAIR	—	V. POOR	FAIR

POTENTIAL NATIVE PLANT COMMUNITY (RANGELAND OR FOREST UNDERSTORY VEGETATION)

FOOTNOTE

KEYING ONLY	COMMON PLANT NAME	PLANT SYMBOL (NLSPN)	PERCENTAGE COMPOSITION (DRY WEIGHT) BY CLASS DETERMINING PHASE: ALL				
PHASE 401							
PLANT 411	BASIN WILDRYE	ELCI2	45				
2	INDIAN RICEGRASS	OPHY	5				
3	WESTERN WHEATGRASS	AGSM	10				
4	SQUIRRELTAIL	SIHY	5				
5	OTHER PERENNIAL GRASSES	PPGG	5				
6	FLEABANE	ERIGE2	2				
7	OTHER PERENNIAL FORBS	PPFF	3				
8	FLUFFWING SALTBUSH	ATCA2	10				
9	WINTERFAT	EULA5	3				
421	BIG SAGEBRUSH	ARTR2	4				
2	RUBBER RABBITBRUSH	CHNA2	4				
3	OTHER SHRUBS	SSSS	4				
PRODUC 431	POTENTIAL PRODUCTION (LBS./AC. DRY WT): FAVORABLE YEARS		2500				
2	NORMAL YEARS		2000				
3	UNFAVORABLE YEARS		1500				

FOOTNOTES

NOTES 441

SYM. 1 RANGE SITE IS FOOTHILL SWALE

COMMON ALARM NAME	ALARM NUMBER (DECIMAL)

DEFENDING CLASS	ZONE	HAZARD FUNCTION	FUNCTION CODE*	ACTIVITY SELECTED	HAZARD AMOUNT	COMPLEX ALARM	IMPORTANT AREAS	INDEX SITE	TARGET TO ATTACK

DEFENDING CLASS	CAPABILITY	ESCAPE MAP (ALPHA)															
	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN

DEFENDING CLASS	ZONE	ZONE	ZONE	—	—	ZONE	ZONE	ZONE	ZONE	—	ZONE	ZONE
	ACCESS CONTROL	RESCUE CONTROL	MEDICAL AID	HAZARD CONTROL	ALARM CONTROL	SECURITY	ALARM KEEPING	ALARM MAINTAIN	ALARM OPERATION	ALARM ACCESS	ALARM KEEPING	ALARM MAINTENANCE
	POTENTIAL HAZARD ALARM CONTROL LOCATIONS REQUIRING ALARM OR ACCESS AND CONTROL ACCEPTATION								POTENTIAL MAINTAIN FOR			

DEFENDING CLASS	ZONE	HAZARD FUNCTION	FUNCTION CODE*	HAZARD ACTIVITY	HAZARD AMOUNT	COMPLEX ALARM	IMPORTANT AREAS	INDEX SITE	TARGET TO ATTACK

DEFENDING CLASS	ZONE	HAZARD FUNCTION	FUNCTION CODE*	HAZARD ACTIVITY	HAZARD AMOUNT	COMPLEX ALARM	IMPORTANT AREAS	INDEX SITE	TARGET TO ATTACK

PICNIC AREAS	

TRAILS AND PATHS	

CAMP AREAS	

RECREATION AREAS ONLY	

PART MODIFIED:

PART NAME: #1 Ute Bypass (Alternate)

(5)

Tentative - subject to revision

HAGGA SERIES

The Hagga series consists of deep, poorly, and very poorly drained soils that formed in alluvium derived mainly from calcareous sandstones and shales. Hagga soils are on valley bottoms and have slopes of 0 to 5 percent. The mean annual precipitation is about 16 inches and the mean annual air temperature is about 45 degrees F.

Hagga soils are similar to the Buford and Havre soils. Buford soils have dark surfaces and have very gravelly substratums. Havre soils are well drained to moderately well drained, lacking mottles above a depth of 40 inches.

Typical pedon of Hagga loam, 0 to 5 percent slopes, 150 feet south and 160 feet west of northwest corner of Section 5, T3S, R96W (175 feet southwest of Stuart Gulch gaging station).

MADDA SERIES

The Madga series consists of deep, poorly, and very poorly drained soils formed in alluvium derived mainly from calcareous sandstones and shales. Madga soils are on nearly level positions and have slopes of 0 to 2 percent. The mean annual precipitation is about 15 inches and the mean annual air temperature is about 57 degrees F.

Madga soils are similar to the Burtorf and Herye soils. Burtorf soils have dark entisces and have very strongly saline. Heryc soils are well drained to moderately well drained, lacking mottles above a depth of 40 inches.

Typical pedon of Madga loam, 0 to 2 percent slopes, 750 feet

O 2-0"--Organic material comprised of grasses, sedges, and rushes in various stages of decomposition.

A11 0-5"--Light gray (10YR 7/2) loam, pale brown (10YR 6/3) moist; common, fine, and medium, faint, light yellowish brown (10YR 6/4) iron mottles; weak medium granular structure; slightly hard, very friable, nonsticky and nonplastic; strongly calcareous; clear smooth boundary.

A12 5-12"--Light gray (10YR 7/2) loam, grayish brown (10YR 5/2) moist; common, fine, and medium, faint, light yellowish brown (10YR 6/4) iron mottles; weak coarse platy and weak medium subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; strongly calcareous; clear smooth boundary.

A13gb 12-17"--Dark gray (10YR 4/1) loam; black (10YR 2/1) moist; massive; slightly hard, friable, nonsticky and nonplastic; weakly calcareous; clear smooth boundary.

C1gb 17-25"--Light gray (10YR 7/1) loam, dark grayish brown (10YR 4/2) moist; common fine faint, light yellowish brown mottles; massive; hard, friable, nonsticky and nonplastic; weakly calcareous gradual wavy boundary.

C12gb 25-50"--Light gray (2.5Y 7/2) clay loam, gray (10YR 5/1) moist; many, fine, and medium, distinct, light brown iron mottles; massive; hard, friable, sticky and plastic; weakly calcareous.

0 S-0"--Organic material comprised of leaves, needles, and twigs at various stages of decomposition.

ALL 0-2"--Light gray (10YR 7/1) loam, fine platy structure; slightly hard, friable, nonsticky and nonplastic; many common fine roots; many fine tubular pores; 15% by volume rock fragments; clear smooth boundary.

A1 2-15"--Light gray (10YR 7/1) loam, gray (10YR 5/1) moist; common, fine, and medium, faint, light yellowish brown (10YR 6/4) mottles; moderate very fine and fine granular structure; slightly hard, friable, nonsticky and nonplastic; many fine roots; many fine tubular pores; 15% by volume rock fragments; clear smooth boundary.

A3 15-21"--Dark gray (10YR 4/1) loam; black (10YR 3/1) moist; many, fine, and medium, distinct light brown (7.5YR 6/4) mottles; moderate very fine and fine subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; many fine roots; many fine tubular pores; 15% by volume rock fragments; clear smooth boundary.

B21 21-29"--Light gray (10YR 7/2) loam, dark grayish brown (10YR 4/2) moist; common, fine, and medium, distinct light yellowish brown (10YR 6/4) mottles; moderate very fine and fine subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; many fine roots; many fine tubular pores; 15% by volume rock fragments; clear smooth boundary.

B22 29-40"--Light gray (10YR 7/2) loam, dark grayish brown (10YR 4/2) moist; common, fine, and medium, distinct light yellowish brown (10YR 6/4) mottles; moderate very fine and fine subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; many fine roots; many fine tubular pores; 15% by volume rock fragments; clear smooth boundary.

These soils have a water table which fluctuates, being highest in late spring or early summer.

The A horizon has a value of six or seven dry and four to six moist, Chromas are two or less and hue is 10YR. This horizon ranges from very fine sandy loam to light clay loam. The C horizons have hues of 10YR and 215Y, and below depths of 40 inches may range to 5Y; chromas are two or less. Mottles have chromas of three or more, in hues of 7.5 YR and 10 YR.

These units have a weight capable which fluctuates, peaks highest in late spring or early summer.

The A portion has a value of six or seven qtr and runs to six noles, CATHODE are two or less and are LOXY. Late portion ranges from very time enough room to light clay loam. The C portions have mass of LOXY and SLSX, and below depths of 40 inches may range to 5X; cathode are two or less. Mottles have cathode of three or more, in mass of 1.2 XY and XY.

Hagga loam, 0 to 5 percent slopes.--This is a very deep, poorly drained soil on floodplains at elevations of 6,000 to 6,700 feet. It formed in calcareous alluvium from mixed sandstone and shale sources. The average annual precipitation is about 16 inches, average annual air temperature is about 45 degrees F., and average frost-free period is about 80 to 95 days.

Included in this unit are small areas of Havre soils. Also included are areas of somewhat poorly drained soils which have seasonal water tables at depths between 40 and 54 inches. Small areas of very poorly drained Hagga soils and poorly and very poorly drained clayey soils are included. Included areas of very poorly drained soils and of strongly saline loams and clay loams are shown on the soil maps by symbols which indicate those spots. All included soils are very deep and have slopes of between 0 and 5 percent.

Typically the surface layer is loam, about 25 inches thick, and except for a dark lens, is light gray. This is underlain at a depth of 25 inches by light gray clay loam. Rust colored iron mottles are common throughout the soil.

Permeability is moderately slow. Effective rooting depth is 60 inches or more. Available water holding capacity is high. Organic matter content in the surface layer is medium. Surface runoff is very slow, with some ponding. Erosion hazard is slight.

Hagga loam, 0 to 2 percent slopes.--Data is a very deep, poorly drained soil on flood plains at elevations of 2,000 to 2,700 feet. It formed in alluvium derived mainly from mixed sandstone and shale sources. The average calcareous silt loam mixed with small amounts of fine sand. Included areas of very poorly drained soils and of strongly saline soils are about 10 percent of the unit.

Permeability is moderately slow. Effective rooting depth is 60 inches or more. Available water holding capacity is high. Organic matter content in the surface layer is medium. Surface runoff is very slow, with some ponding. Erosion hazard is slight.

Typically the surface layer is loam, about 25 inches thick, and is dark grayish brown and grayish brown when dry. The subsoil is dark grayish brown and brown loam and clay loam. The substratum is brown loam.

25 inches by light gray clay loam. Mixed colored iron mottles are common throughout the soil.

Permeability is moderately slow. Effective rooting depth is 60 inches or more. Available water holding capacity is high. Organic matter content in the surface layer is medium. Surface runoff is very slow, with some ponding. Erosion hazard is slight.

Included in this unit are small areas of Heavy soils. Also included are small areas of somewhat poorly drained soils which have seasonal water table at depths between 40 and 24 inches. Small areas of very poorly drained Hagga soils and poorly and very poorly drained clayey soils are scattered throughout the unit.

Included areas of very poorly drained soils and of strongly saline soils are about 15 percent of the unit. If formed in alluvium derived mainly from mixed sandstone and shale sources. The average annual precipitation is about 10 inches, average annual air temperature is about 45 degrees F., and average frost-free period is about 80 to 95 days.

This soil is used for native and seeded grass hay. Limited acreage is seeded to small grain for hay. Yields of the more desirable grasses and small grains are medium, being limited by the high water table.

In the fall local ducks utilize the grasses on Hagga soils; however, they find most of the seeds on included areas of very poorly drained soils which are two wet to mow for hay. In evenings deer concentrate on Hagga soil for the water which is associated with it.

Hagga soils have a poor potential for urban and recreational developments. High water tables are the chief limiting feature. The prevalent surface ponding leads to a mosquito problem on this soil.

Problems will arise with septic tank absorption fields because of the high water table. Experience with deep borings are too limited to be suggestive as to whether vertical leach lines would be feasible. (Capability subclass IVw, irrigated.)

(Capabilities unclear, IVA1 irrigated.")

to be suggestive as to whether vertical leach lines would be feasible.

of the pigh water table. Experience with deep portugs has too limited

Much soil is used for mature and seeded grass pay. Limited

acreage is seeded to small grain for pay. Yields of the more desirable

grasses and small grains are medium, period limited by the pigh water

table.

In the left local groups utilize the grasses on Maggs soils:

however, they find most of the seeds on included areas of very poorly

drained soils which are two wet to mow for pay. In evening deep

concentrate on Maggs soil for the water which is associated with it.

Maggs soils have a poor potential for urban and recreational

development. High water tables are the chief limiting feature. The

treatment surface ponding leads to a moderate proplem on this soil.

S-SOILS-5
V. MAY 1972
I.P. CODE SOILS-12

Typic Torrifluvent: F-S(calc.) frigid fine-loamy mixed

(1)

Tentative – subject to revision

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL SURVEY INTERPRETATIONS

KEYING ONLY: RECORD NO. | CONTROL WORD | NO.
MLRA 011 | STATE 011

MLRA(S) 48 | KIND OF UNIT SERIES | UNIT NAME (HAGGA) 9 RIO BLANCO CO., COLO.
STATE COLORADO | RECORD NO. | AUTHOR(S) LWW | DATE 8-75 | REVISED | UNIT MODIFIER

CLASSIFICATION AND BRIEF SOIL DESCRIPTION

071
031
2 THE HAGGA SERIES CONSISTS OF DEEP POORLY DRAINED SOILS FORMED IN CALCAREOUS FLOODPLAIN
3 ALLUVIUM. TYPICALLY THE SURFACE 25 INCHES IS ~~MOSTLY SILTY CLAY~~ LOAM AND SILT ~~LOAM~~
4 ~~SILTY~~. IS UNDERLAIN AT 25 INCHES BY CLAY LOAM. VEGETATION IS GRASSES AND SEDGES. AVERAGE
5 ANNUAL PRECIPITATION IS ABOUT 16 INCHES AND THE FROST FREE SEASON IS ABOUT 80 DAYS. SLOPES
6 ARE ~~LESS~~ LESS THAN 5 PERCENT.

ESTIMATED SOIL PROPERTIES

	FOOTNOTE	DEPTH (IN.)	USDA TEXTURE	UNIFIED	AASHO	FRACT. >3 IN. (PCT)	PERCENT OF MATERIAL LESS THAN 3 IN. PASSING SIEVE: 4	10	40	200	LIQUID LIMIT	PLASTICITY INDEX
PROP 041		~~0-6~~	~~VFSL~~	~~ML~~	~~A-4~~	~~0~~	~~100~~	~~100~~	~~80-95~~	~~60-80~~	~~20-30~~	~~0-10~~
2		0-25	L	ML	A-4	0	100	100	85-95	60-75	20-35	5-10
3		25-50	CL	CL	A-6	0	100	100	90-100	75-80	35-45	15-20
4												
5												
6												

	DEPTH (IN.)	PERMEABILITY (IN/HR)	AVAILABLE WATER CAPACITY (IN/IN)	SOIL REACTION (pH)	SALINITY (MMHOS/CM)	SHRINK-SWELL POTENTIAL	CORROSIVITY: STEEL	CONCRETE	EROSION FACTORS: K	T	WIND EROD. GROUP
PROP 051		0.6-2.0	0.15-0.17	7.9-8.4	<2	LOW	HIGH	LOW	10	5	—
2	SAME DEPTH AS ABOVE	0.6-2.0	0.16-0.18	7.9-8.4	<2	LOW	HIGH	LOW	20	5	—
3		0.2-0.6	0.19-0.21	7.9-8.4	<2	HIGH	HIGH	LOW	24		
4											
5											
6											

	FLOODING: FREQUENCY	DURATION	MONTHS	HIGH WATER TABLE: DEPTH (FT)	KIND	MONTHS	CEMENTED PAN: DEPTH (IN)	HARDNESS	BEDROCK: DEPTH (IN)	HARDNESS	SUBSIDENCE: INITIAL (IN)	TOTAL (IN)	HYD GRP	POTENTIAL FROST ACTION
PROP 061	RARE	VERY BRIEF	JUNE	0.5-2.5	APPARENT	MAY-AUG	—		>60		—		D	HIGH

SANITARY FACILITIES

	FOOTNOTES	
SEPTIC 071	SEPTIC TANK ABSORPTION FIELDS	SEVERE — WET
LAGOON 081	SEWAGE LAGOONS	SEVERE — WET, FLOODS
CH 091	SANITARY LANDFILL (TRENCH)	SEVERE — WET
SANARE 101	SANITARY LANDFILL (AREA)	SEVERE - WET
COVER 111	DAILY COVER FOR LANDFILL	POOR — WET

COMMUNITY DEVELOPMENT

	FOOTNOTES	
EXCAV 121	SHALLOW EXCAVATIONS	SEVERE - WET
DWEL 131	DWELLINGS WITHOUT BASEMENTS	SEVERE - WET
DWEL 141	DWELLINGS WITH BASEMENTS	SEVERE - WET
BLDGS 151	SMALL COMMERCIAL BUILDINGS	SEVERE - WET
ROADS 161	LOCAL ROADS AND STREETS	SEVERE — WET, FROST ACTION

REGIONAL INTERPRETATIONS

	FOOTNOTES	
ION 171		
REGION 181		

SOURCE MATERIAL

KEYING ONLY		FOOTNOTES	
FILL 191	ROADFILL		SEVERE — FROST ACTION, SHRINK-SWELL
SAND 201	SAND		UNSUITED
GRAVEL 211	GRAVEL		UNSUITED
SOIL 221	TOPSOIL		POOR — WET

WATER MANAGEMENT

	FOOTNOTES	
PONDRS 231	POND RESERVOIR AREA	FAVORABLE
DIKES 241	EMBANKMENTS DIKES AND LEVEES	LOW STRENGTH, PIPING, UNSTABLE FILL
PONDAQ 251	EXCAVATED PONDS AQUIFER FED	FAVORABLE
DRAIN 261	DRAINAGE	WET, FROST ACTION, FLOODS
IRRIG 271	IRRIGATION	WET, FLOODS
TERRAC 281	TERRACES AND DIVERSIONS	WET
WATERW 291	GRASSED WATERWAYS	WET

SOIL SURVEY INTERPRETATIONS

| | | |

(2) Tentative - subject to revision

KEYING ONLY — RECORD NO. / CONTROL WORD / NO.

UNIT NAME: HAGGA
UNIT MODIFIER:

RECREATION

KEYING ONLY	NO.		FOOTNOTE	KEYING ONLY	NO.		FOOTNOTE
MPS	301	CAMP AREAS	SEVERE — WET	PLAYGD	321	PLAYGROUNDS	SEVERE - WET
PICNIC	311	PICNIC AREAS	SEVERE - WET	PATHS	331	PATHS AND TRAILS	SEVERE - WET

CAPABILITY AND PREDICTED YIELDS - CROPS AND PASTURE (HIGH LEVEL MANAGEMENT)

FOOTNOTE

KEYING ONLY	NO.	CLASS-DETERMINING PHASE	CAPABILITY NIRR	CAPABILITY IRR.	IVw NIRR	IVw IRR.												
CROPHD	451																	
CROPS	341	0-5 % slopes	IVw															
	351																	

WOODLAND SUITABILITY

FOOTNOTE

KEYING ONLY	NO.	CLASS-DETERMINING PHASE	ORD SYM	MANAGEMENT PROBLEMS: EROSION HAZARD	EQUIP. LIMIT	SEEDLING MORT'Y.	WINDTH. HAZARD	PLANT COMPET.	POTENTIAL PRODUCTIVITY: IMPORTANT TREES	SITE INDEX	TREES TO PLANT
WOODS	361								NONE		
	371										

WIND BREAKS

FOOTNOTE

KEYING ONLY	NO.	CLASS-DETERMINING PHASE	SPECIES	HT	SPECIES	HT	SPECIES	HT	SPECIES	HT
WINDBK	381									

WILDLIFE HABITAT SUITABILITY

FOOTNOTE

KEYING ONLY	NO.	CLASS-DETERMINING PHASE	POTENTIAL FOR HABITAT ELEMENTS: GRAIN & SEED	GRASS & LEGUME	WILD HERB.	HARDWD TREES	CONIFER PLANTS	SHRUBS	WETLAND PLANTS	SHALLOW WATER	POTENTIAL AS HABITAT FOR: OPENLAND WILDLIFE	WOODLAND WILDLIFE	WETLAND WILDLIFE	RANGELAND WILDLIFE
WILDLF	391		POOR	FAIR	FAIR	—	—	—	GOOD	FAIR	POOR	—	FAIR	POOR

POTENTIAL NATIVE PLANT COMMUNITY (RANGELAND OR FOREST UNDERSTORY VEGETATION)

FOOTNOTE

KEYING ONLY	NO.		COMMON PLANT NAME	PLANT SYMBOL (NLSPN)	PERCENTAGE COMPOSITION (DRY WEIGHT) BY CLASS DETERMINING PHASE: ALL
PHASE	401				
PLANT	411	1	WESTERN WHEATGRASS	AGSM	40
		2	NEBRASKA SEDGE	CANE5	25
		3	SLENDER WHEATGRASS	AGTR	5
		4	BASIN WILDRYE	ELCI2	5
		5	RUSHES	JUNCU	5
		6	OTHER PERENNIAL GRASSES	PPGG	6
		7	WESTERN YARROW	ACMIL	1
		8	BUTTERCUP	RANUN	2
		9	SNOWY POTENTILLA	POGR9	1
	421		OTHER PERENNIAL FORBS	PPFF	10

KEYING ONLY	NO.	POTENTIAL PRODUCTION (LBS./AC. DRY WT):	
PRODUC	431	FAVORABLE YEARS	2500
		NORMAL YEARS	2000
		UNFAVORABLE YEARS	1500

FOOTNOTES

KEYING ONLY	NO.	SYM.	
NOTES	441	1	RANGE SITE IS SWALE MEADOW

POTENTIAL PRODUCTION CLASS/AC DAY ATT	
MAXIMUM AERIE	5250
NORMAL AERIE	5150
MINIMUM AERIE	1250

COMMON PLANT NAME	USUAL SYMBOL	PLANT
NORTHERN WHEATGRASS	AGSM	40
CRESTED WHEATGRASS	AGCR	30
BLUE GRAMA	BOGR	20
SAND DROPSEED	SPCR	5
BASIN WILDRYE	ELCI	5
FORAGE KOCHIA	KOPR	5
WESTERN WHEATGRASS	AGSM	5
GREEN NEEDLEGRASS	STVI	5
SMOOTH BROMEGRASS	BRIN	5
CRESTED WHEATGRASS	AGCR	10
SMALL BURNET	SAMI	1
RUSSIAN WILDRYE	ELJU	2
SAND DROPSEED	SPCR	1
PRAIRIE JUNEGRASS	KOMA	1
GREEN NEEDLEGRASS	STVI	1
SMOOTH BROMEGRASS	BRIN	1
WESTERN WHEATGRASS	AGSM	1
ALFALFA	MESA	1

COMMON NAME	SCIENTIFIC NAME	SYMBOL	PLANT	—	—	—	CANOPY	PLANT	BASAL	—	PLANT	SEED

Tentative - subject to revision

HANLY SERIES

The Hanly series consists of deep somewhat excessively drained soils that have formed in detrital alluvium of calcareous sandstone and shale origin. Hanly soils are on alluvial fans and in narrow valleys with slope gradients of 2 to 9 percent. Mean annual precipitation is about 16 inches and the mean annual air temperature is about 45 degrees F.

Hanly soils are similar to the Glendive soils with which they are closely associated. Glendive soils differ in being mainly sandy loam at 10 to 40 inch depths.

Typical pedon of Hanly gravelly loamy fine sand, 2 to 9 percent slopes, 1.5 mile up Ryan Gulch, 200 feet north of road, in the $SE\frac{1}{4}$ of $SE\frac{1}{4}$ Section 31, T1S, R98W.

A1 0-6"--Pale brown (10YR 6/3) channery loamy fine sand, brown (10YR 4/3) moist; weak fine gramular structure; soft, very friable, nonsticky and nonplastic; moderately alkaline, strongly calcareous; 18 percent fine channery, clear wavy boundary.

C1 6-16"--Light yellowish brown (10YR 6/4) channery sand, dark yellowish brown (10YR 4/4) moist; massive; soft, very friable, nonsticky and nonplastic; moderately alkaline, violently calcareous; 17 percent fine channery; clear wavy boundary.

C2 16-21"--Light yellowish brown (10YR 6/4) channery sand, dark yellowish brown (10YR 4/4) moist; massive; soft, very friable, nonsticky and nonplastic; moderately alkaline, violently calcareous, 50 percent channery, of which two-thirds is coarse; 5 percent cobble; clear wavy boundary..

C3 21-37"--Light yellowish brown (10YR 6/4) channery sand; dark yellowish brown (10YR 4/4) moist; massive; soft, very friable, nonsticky and nonplastic; strongly alkaline, violently calcareous; 33 percent channery of which one-half is coarse; abrupt wavy boundary.

A1b 37-42"--Pale brown (10YR 6/3) channery loamy fine sand, dark brown (10YR 4/3) moist; massive; slightly hard, very friable, nonsticky and nonplastic; strongly alkaline (pH 9.0); violently calcareous; 20 percent fine channery; abrupt wavy boundary.

		vertically and horizontally aligned; strong visual contrast; 95 percent ink on paper; sharp edges;
		normal (TOXR 4\3) motor; measured; slightly hard, very tribal,
A1	3-"54--Late prown (TOXR 6\3) chemnerly loomy kind sand, dark	
		very portuguese.
		soon; 33 percent chemnery of wrist one-half is coarse; spindly
		nonarticky and nonbiaseptic; strongly alkaline, vitoleptly carcer-
		keltowsted prown (TOXR 4\4) motor; measured; soft, very tribal,
C3	51-31"--Light keltowsted prown (TOXR 6\4) chemnerly sand; dark	
		2 percent coppla; cyber very portuguese.
		carcerzeone; 20 percent chemnery, of wrist two-fifths is coarse;
		nonarticky and nonbiaseptic; moderately alkaline, vitoleptly
		keltowsted prown (TOXR 4\4) motor; measured; soft, very tribal,
C5	15-3L"--Light keltowsted prown (TOXR 6\4) chemnerly sand; dark	
		carcerzeone; 71 percent time chemnery; cyber very portuguese.
		nonarticky and nonbiaseptic; moderately alkaline, vitoleptly
		keltowsted prown (TOXR 4\4) motor; measured; soft, very tribal,
C1	6-3C"--Light keltowsted prown (TOXR 6\4) chemnerly sand; dark	
		portuguese.
		strongly carcerzeone; 38 percent time chemnery, cyber very
		tribal, nonarticky and nonbiaseptic; moderately alkaline,
		(TOXR 4\3) motor; weak time glamnyer; soft, very
A1	0-6"--Late prown (TOXR 6\3) chemnerly loomy time sand, prown	

IIc1 42-50"--Light yellowish brown (10YR 6/4) channery sand, dark yellowish brown (10YR 4/4) moist; massive; slightly hard, very friable, nonsticky and nonplastic; strongly alkaline (pH 8.6); violently calcareous; 33 percent fine channery; clear wavy boundary.

IIc2 50-60"--Light yellowish brown (10YR 6/4) channery sand, dark yellowish brown (10YR 4/4) moist; massive; loose, very friable, nonsticky and nonplastic; strongly alkaline, violently calcareous; 40 percent fine channery; clear wavy boundary.

The soil is 60 inches or more deep. Coarse fragments make up 25 to 35 percent of the 10 to 40 inch depth. Reaction is moderately alkaline.

The A horizon is light brownish gray or pale brown. The texture is variable, ranging from fine sandy loam to sand, and may be modified as channery.

The control section (10 to 40 inch depth) averages as channery sand, and is comprised of lenses which range from coarse sand to loamy fine sand, and which range from nearly channery free to extremely channery. Color is pale brown, light yellowish brown, or very pale brown. Reaction is mildly alkaline to strongly alkaline and is strongly or very strongly calcareous. Below the 40 inch depth the soil is generally similar, but may average very channery. Some soils contain thin buried dark colored A horizons.

The control section (LC to 04 inch depth) averages as chromaticity
as chromaticity.

The A portion is light protected from here down. The texture
is verified, ranging from fine sandy loam to sand, and may be modified
slightly. Color is here brown, light yellowish brown, or very pale
brown, and is combined of fewer kinds from coarse sand to loamy
sand, and is often range from nearly chromaticity tree of extremely
fine sand, and very coarse from nearly chromaticity tree of extremely
strong. Reaction is mildly alkaline or strongly alkaline and is strongly
to very strongly calcareous. Below the 04 inch depth the soil is
generally similar, but may average very chromaticity. Some soils contain
fine pulped dark colored A horizons.

75 - Hanly channery loamy fine sand, 2 to 9 percent slopes.--This is a very deep somewhat excessively drained soil on alluvial fans and alluvial cones and on narrow stream bottoms at elevations between 6,000 and 6,500 feet. It formed in coarse alluvium of sandstone or mixed sandstone and shale origin. The average annual precipitation is about 16 inches, average annual air temperature is about 45 degrees F., and average frost-free period is about 80 to 105 days.

Included in this unit are small areas of Glendive soils, and areas of a soil differing from Hanly in being very channery in the 10 to 40 inch depth.

Typically the surface layer is pale brown channery loamy fine sand about 6 inches thick. The next layers, to a depth of 37 inches, consist of light yellowish brown channery sand. The substratum, between 37 and 60 inches, consists of pale brown and light yellowish brown channery sand very channery sand, and channery loamy fine sand. The soil is highly calcareous throughout.

Permeability is rapid. Effective rooting depth is 60 inches or more. Available water holding capacity is low. Organic matter content in the surface is low. Surface runoff is slow and erosion hazard is medium.

This soil is used almost entirely for range. Small areas have been worked as a source of road metal.

been worked as a source of road metal.

Into soil is used almost entirely for range. Small areas have

tested is medium.

content in the entrance is low. Entrance through is slow and erosion

or more. Available water holding capacity is low. Organic matter

The soil is highly calcareous throughout.

Permeability is rapid. Effective rooting depth is 60 inches

from channels sand very channels sand, and channels loamy fine sand.

between 15 and 60 inches, consists of beds from and light reddish

consist of light reddish brown channels sand. The subsoil

sand about 6 inches thick. The next layer, to a depth of 31 inches,

a very deep somewhat excessively drained soil on alluvial fans and

alluvial cones and on bottom steps at elevations between

6,000 and 6,200 feet. It formed in coarse alluvium of sandstone or

mixed sandstone and shale origin. The average annual precipitation

is about 16 inches, average annual air temperature is about 54 degrees

F., and average frost-free period is about 90 to 105 days.

Included in this unit are small areas of Grandview soils, and

areas of a soil dissimilar from Hanly in being very channery in the

10 to 40 inch depth.

Typically the entrance layer is here brown channery loamy fine

sand about 6 inches thick. The next layer, to a depth of 31 inches,

12 - Hanly channery loamy fine sand, 5 to 9 percent slopes.--This is

The Hanly soil has a fair potential for cottontail and deer. They use grasses, forbs, and brush; and obtain their shelter primarily from the brush.

As roads are improved in the area more of this soil will be used as a source of road material. Typically, the top layer has less gravel and in areas which are mined for road material this top portion should be put aside rather than mixed in with the more gravelly layers. If domestic water wells are put on these soils, care should be taken that sewage effluent does not leach into the water bearing strata. (Capability subclass, VIe, dryland.)

(Chapter XIV, page 214 of diagram.)

that sewage effluent does not reach into the water bearing strata.

It domestic water wells are put on these soils, care should be taken

should be put safe tested then mixed in with the more gravelly layers.

Gravel and in areas where are mined for road material this job portion

need as a source of road material. Typically, the pot layer has less

than this improved in the area more of this soil will be

from the river.

They may Grasses, torpa, and privy; and optain that selfset primarily

The Hamly soil has a left horsuflal for coffontall and deet.

CODE SHEET

KEYING ONLY

CORD NO.	CONTROL WORD	CONTROL NO.
	MLRA	001
	STATE	011

(1) Tentative – subject to revision

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

Ustic TorriFluvent, sandy, mixed, Frigid

SOIL SURVEY INTERPRETATIONS

RIO BLANCO CO., Co/o.

MLRA(S) 48 | KIND OF UNIT SERIES | UNIT NAME (HANLY) 75

STATE COLORADO | RECORD NO. | AUTHOR(S) | DATE 8-75 | REVISED | UNIT MODIFIER

CLASSIFICATION AND BRIEF SOIL DESCRIPTION

021
031
2 HANLY SOILS ARE SOMEWHAT EXCESSIVELY DRAINED. SLOPES ARE 2 TO 9 PERCENT ON ALLUVIAL FANS AND NARROW VALLEYS. ELEVATIONS
3 ARE 6000 TO 6500 FEET. MEAN ANNUAL PRECIPITATION IS 16 INCHES, MEAN ANNUAL AIR TEMPERATURE IS 45 F, AND FROST FREE SEASON
4 IS 70 TO 105 DAYS. TYPICALLY THE SURFACE LAYER IS PALE BROWN CHANNERY LOAMY FINE SAND 6 INCHES THICK. THE NEXT LAYER IS
5 PERENNIAL GRASSES AND FORBS.

FOOTNOTE

ESTIMATED SOIL PROPERTIES

	DEPTH (IN.)	USDA TEXTURE	UNIFIED	AASHO	FRACT. >3 IN. (PCT)	PERCENT OF MATERIAL LESS THAN 3 IN. PASSING SIEVE: 4	10	40	200	LIQUID LIMIT	PLASTICITY INDEX
PROP 041	0-6	CN-LFS	SM	A-2	0	85-90	70-75	55-65	10-20	—	NP
2	6-62	CN-S	SM	A-2	0-5	75-80	50-55	25-30	5-10	—	NP
3											
4											
5											
6											

	DEPTH (IN.)	PERMEABILITY (IN/HR)	AVAILABLE WATER CAPACITY (IN/IN)	SOIL REACTION (pH)	SALINITY (MMHOS/CM)	SHRINK-SWELL POTENTIAL	CORROSIVITY: STEEL	CORROSIVITY: CONCRETE	EROSION FACTORS: K	EROSION FACTORS: T	WIND EROD. GROUP
PROP 051	SAME DEPTH AS ABOVE	2.0-6.0	0.05-0.09	7.9-8.4	—	LOW	HIGH	LOW	.10	5	—
2		6.0-20	0.04-0.06	8.5-9.0	<2	LOW	HIGH	LOW	.10	5	—
3											
4											
5											
6											

	FLOODING: FREQUENCY	FLOODING: DURATION	FLOODING: MONTHS	HIGH WATER TABLE: DEPTH (FT)	HIGH WATER TABLE: KIND	HIGH WATER TABLE: MONTHS	CEMENTED PAN: DEPTH (IN)	CEMENTED PAN: HARDNESS	BEDROCK: DEPTH (IN)	BEDROCK: HARDNESS	SUBSIDENCE: INITIAL (IN)	SUBSIDENCE: TOTAL (IN)	HYD GRP	POTENTIAL FROST ACTION
PROP 061	NONE			>6			—		>60		—		A	LOW

	FOOTNOTES	SANITARY FACILITIES	KEYING ONLY		FOOTNOTES	SOURCE MATERIAL
SEPTIC 071	SEPTIC TANK ABSORPTION FIELDS	SLIGHT	FILL	191	ROADFILL	2-8%: GOOD; 8+%: FAIR — SLOPE
LAGOON 081	SEWAGE LAGOONS	SEVERE — SEEPAGE	SAND	201	SAND	POOR
TRENCH 091	SANITARY LANDFILL (TRENCH)	SEVERE — SEEPAGE	GRAVEL	211	GRAVEL	POOR
SANARE 101	SANITARY LANDFILL (AREA)	SEVERE — SEEPAGE	SOIL	221	TOPSOIL	POOR — SMALL STONES, TOO SANDY, THIN LAYER
COVER 111	DAILY COVER FOR LANDFILL	POOR — TOO SANDY				

	FOOTNOTES	COMMUNITY DEVELOPMENT			FOOTNOTES	WATER MANAGEMENT
EXCAV 121	SHALLOW EXCAVATIONS	2-8%: MODERATE — SMALL STONES; 8+%: MODERATE — SMALL STONES, SLOPE	PONDRS	231	POND RESERVOIR AREA	SLOPE, SEEPAGE
DWEL 131	DWELLINGS WITHOUT BASEMENTS	2-5%: SLIGHT; 8+%: MODERATE — SLOPE	DIKES	241	EMBANKMENTS DIKES AND LEVEES	SEEPAGE
DWEL 141	DWELLINGS WITH BASEMENTS	2-8%: SLIGHT; 8+%: MODERATE — SLOPE	PONDAQ	251	EXCAVATED PONDS AQUIFER FED	NO WATER
BLDGS 151	SMALL COMMERCIAL BUILDINGS	2-4%: SLIGHT; 4-7½%: MODERATE — SLOPE; 7½+%: SEVERE — SLOPE	DRAIN	261	DRAINAGE	FAVORABLE
ROADS 161	LOCAL ROADS AND STREETS	2-8%: SLIGHT; 8+%: MODERATE — SLOPE	IRRIG	271	IRRIGATION	DROUGHTY, ERODES EASILY, FAST INTAKE
			TERRAC	281	TERRACES AND DIVERSIONS	TOO SANDY, ERODES EASILY
			WATERW	291	GRASSED WATERWAYS	DROUGHTY, ERODES EASILY

	FOOTNOTES	REGIONAL INTERPRETATIONS
N 171		
REGION 181		

Tentative - subject to revision (1)

SOIL SURVEY INTERPRETATIONS

Rio Grande Co., Colo.

Ustic Torriorthents, sandy, mixed, frigid

MLRA(S) 48 | KIND OF UNIT Series | UNIT NAME HANLEY 73

STATE Colorado | RECORD NO. | AUTHOR(S) | DATE 8-75 | REVISED | UNIT MODIFIER

CLASSIFICATION AND BRIEF SOIL DESCRIPTION

HANLEY SOILS ARE SOMEWHAT EXCESSIVELY DRAINED SOILS ON 2 TO 8 PERCENT ON ALLUVIAL FANS AND STREAM VALLEYS. ELEVATIONS ARE 8,000 TO 8,700 FEET. MEAN ANNUAL PRECIPITATION IS 16 INCHES, MEAN ANNUAL AIR TEMPERATURE IS [illegible], AND FROST FREE SEASON IS [illegible] TO 105 DAYS. TYPICALLY THE SURFACE LAYER IS [illegible] INCHES THICK. THE NEXT LAYER IS [illegible] LOAMY SAND AND VERY GRAVELLY SAND TO DEPTH OF 60 INCHES. VEGETATION IS MOSTLY BIG SAGE BRUSH, PERENNIAL GRASSES AND FORBS.

ESTIMATED SOIL PROPERTIES

DEPTH (IN.)	USDA TEXTURE	UNIFIED	AASHO	FRACT. >3 IN. (PCT)	PERCENT PASSING SIEVE 4	10	40	200	LIQUID LIMIT	PLASTICITY INDEX
0-6	GR-LFS	SM	A-2	0	75-90	70-85	55-65	15-20	—	NP
6-60	GR-S	SM	A-2	0-5	71-82	50-55	25-40	5-10	—	NP

DEPTH (IN.)	PERMEABILITY (IN/HR)	AVAILABLE WATER CAPACITY (IN/IN)	SOIL REACTION (pH)	SALINITY (MMHOS/CM)	SHRINK-SWELL POTENTIAL	CORROSIVITY STEEL	CORROSIVITY CONCRETE	EROSION FACTORS K	T	WIND EROD. GROUP
SAME DEPTH AS ABOVE	2.0-6.0	0.05-0.09	7.4-8.4	—	LOW	HIGH	LOW	.10	5	—
	6.0-20	0.04-0.06	7.5-9.0	<2	LOW	HIGH	LOW	.10	5	—

FLOODING FREQUENCY	DURATION	MONTHS	HIGH WATER TABLE DEPTH (FT)	KIND	MONTHS	CEMENTED PAN DEPTH (IN)	HARDNESS	BEDROCK DEPTH (IN)	HARDNESS	SUBSIDENCE INITIAL (IN)	TOTAL (IN)	HYD GRP	POTENTIAL FROST ACTION
NONE			>6			—		>60		—		A	LOW

SANITARY FACILITIES

SEPTIC TANK ABSORPTION FIELDS	SLIGHT
SEWAGE LAGOONS	SEVERE - SEEPAGE
SANITARY LANDFILL (TRENCH)	SEVERE - SEEPAGE
SANITARY LANDFILL (AREA)	SEVERE - SEEPAGE
DAILY COVER FOR LANDFILL	POOR - TOO SANDY

SOURCE MATERIAL

ROADFILL	2-8%: GOOD 8+%: FAIR - SLOPE
SAND	POOR
GRAVEL	POOR
TOPSOIL	POOR - SMALL STONES, TOO SANDY, THIN LAYER

COMMUNITY DEVELOPMENT

SHALLOW EXCAVATIONS	2-8%: MODERATE - SMALL STONES 8+%: MODERATE - SMALL STONES, SLOPE
DWELLINGS WITHOUT BASEMENTS	2-8%: SLIGHT 8+%: MODERATE - SLOPE
DWELLINGS WITH BASEMENTS	2-8%: SLIGHT 8+%: MODERATE - SLOPE
SMALL COMMERCIAL BUILDINGS	2-4%: SLIGHT 4-15%: MODERATE - SLOPE 15+%: SEVERE - SLOPE
LOCAL ROADS AND STREETS	2-8%: SLIGHT 8+%: MODERATE - SLOPE

WATER MANAGEMENT

POND RESERVOIR AREA	SLOPE, SEEPAGE
EMBANKMENTS DIKES AND LEVEES	SEEPAGE
EXCAVATED PONDS AQUIFER FED	NO WATER
DRAINAGE	FAVORABLE
IRRIGATION	DROUGHTY, ERODES EASILY, FAST INTAKE
TERRACES AND DIVERSIONS	TOO SANDY, ERODES EASILY
GRASSED WATERWAYS	DROUGHTY, ERODES EASILY

REGIONAL INTERPRETATIONS

Tentative - subject to revision

(2)

UNIT NAME: HANLY
UNIT MODIFIER:

RECREATION

KEYING ONLY			FOOTNOTE		FOOTNOTE
				PLAYGD 321	2-6%: MODERATE — SLOPE, SMALL STONES, DUSTY
		CAMP AREAS	2-5%: SLIGHT	2	6-9%: SEVERE — SLOPE
			5+%: MODERATE — SLOPE	3	PLAYGROUNDS
				4	
				5	
PICNIC	311		2-8%: SLIGHT	PATHS 331	SLIGHT
	2	PICNIC AREAS	8+%: MODERATE - SLOPE	2	PATHS AND TRAILS
	3			3	
	4			4	
	5			5	

CAPABILITY AND PREDICTED YIELDS - CROPS AND PASTURE (HIGH LEVEL MANAGEMENT)

FOOTNOTE

		CLASS-DETERMINING PHASE	CAPABILITY NIRR	CAPABILITY IRR.	NIRR	IRR.	NIRR	IRR.	NIRR	IRR.	NIRR	IRR.	NIRR	IRR.	NIRR	IRR.	NIRR	IRR.
CROPHD	451																	
	2																	
	3																	
CROPS	341	2-9%.	IIe															
	2																	
	3																	
	4																	
	5																	
	6																	
	7																	
	8																	
	9																	
	351																	
	2																	
	3																	

WOODLAND SUITABILITY

FOOTNOTE

		CLASS-DETERMINING PHASE	ORD SYM	MANAGEMENT PROBLEMS: EROSION HAZARD	EQUIP. LIMIT	SEEDLING MORT'Y.	WINDTH. HAZARD	PLANT COMPET.	POTENTIAL PRODUCTIVITY: IMPORTANT TREES	SITE INDEX	TREES TO PLANT
WOODS	361								NONE		
	2										
	3										
	4										
	5										
	6										
	7										
	8										
	9										
	371										
	2										
	3										
	4										
	5										
	6										

WIND BREAKS

FOOTNOTE

		CLASS-DETERMINING PHASE	SPECIES	HT	SPECIES	HT	SPECIES	HT	SPECIES	HT
WINDBK	381	NONE								
	2									
	3									
	4									
	5									
	6									

WILDLIFE HABITAT SUITABILITY

FOOTNOTE

		CLASS-DETERMINING PHASE	POTENTIAL FOR HABITAT ELEMENTS: GRAIN & SEED	GRASS & LEGUME	WILD HERB.	HARDWD TREES	CONIFER PLANTS	SHRUBS	WETLAND PLANTS	SHALLOW WATER	POTENTIAL AS HABITAT FOR: OPENLAND WILDLIFE	WOODLAND WILDLIFE	WETLAND WILDLIFE	RANGELAND WILDLIFE
WILDLF	391		POOR	FAIR	FAIR	—	—	GOOD	V POOR	V POOR	FAIR	—	V POOR	FAIR
	2													
	3													
	4													
	5													
	6													

POTENTIAL NATIVE PLANT COMMUNITY (RANGELAND OR FOREST UNDERSTORY VEGETATION)

FOOTNOTE

		COMMON PLANT NAME	PLANT SYMBOL (NLSPN)	PERCENTAGE COMPOSITION (DRY WEIGHT) BY CLASS DETERMINING PHASE: ALL				
PHASE	401							
	2							
PLANT	411	WESTERN WHEATGRASS	AGSM	25				
	2	INDIAN RICEGRASS	ORHY	5				
	3	BLUEBUNCH WHEATGRASS	AGSP	20				
	4	NEEDLE AND THREAD	STCO4	5				
	5	OTHER PERENNIAL GRASSES	PPGG	5				
	6	WILD BUCKWHEAT	ERIOG	1				
	7	BLADDERPOD	LESQU	2				
	8	CRYPTANTHA	CRYPT	2				
	9	OTHER PERENNIAL FORBS	PPFF	5				
	421	BIG SAGEBRUSH	ARTR2	20				
	2	RABBITBRUSH	CHVIS	5				
	3	OTHER SHRUBS	SSSS	5				
	4							
	5							
	6							
		POTENTIAL PRODUCTION (LBS./AC. DRY WT): FAVORABLE YEARS		1000				
C	431	NORMAL YEARS		750				
	2	UNFAVORABLE YEARS		500				
	3							

FOOTNOTES

	SYM.	
NOTES	441	
	2	
	3	
	4	
	5	
	6	
	7	

1 RANGE SITE IS ROLLING LOAM

| | | |

HAVRE SERIES

The Havre series consists of deep, well drained soils that formed in calcareous mixed alluvium. Havre soils are on floodplains and low terraces and have slopes of 0 to 8 percent. Mean annual precipitation is about 16 inches and the mean annual air temperature is about 44 degrees F.

Havre soils are similar to Uffens, Glending, Youngston, Hagga, Hanly, and Glendive. Uffens soils are natric and saline in reaction. Glending and Youngston occur in a warmer temperature zone. Glending, Hanly, and Glendive have sandier control sections. Hagga soils are poorly drained.

Typical pedon of Havre loam, 0 to 8 percent slopes, about 0.4 mile south, 200 feet east of the NW corner of Section 32, T1N, R94W.

HEAVE SERIES

The HEAVE series consists of deep, well drained soils that formed in calcareous mixed alluvium. HEAVE soils are on floodplains and low terraces and have slopes of 0 to 8 percent. Mean annual precipitation is about 16 inches and the mean annual air temperature is about 44 degrees F.

Heave soils are similar to Ulysses, Clendalyn, Johnson, Hagga, Hanly, and Clendalyn. Ulysses soils are matric and saltic in reaction. Clendalyn and Johnson occur in a warmer temperature zone. Clendalyn, Hanly, and Clendalyn have argillic horizons. Hagga soils are poorly drained.

A1 0-6"--Brown (10YR 5/3) light loam, dark brown (10YR 4/3) moist; weak fine granular structure; soft, very friable; calcareous; clear smooth boundary.

AC 6-13"--Brown (10YR 5/3) light loam, dark brown (10YR 4/3) moist; massive structure; slightly hard, friable, calcareous; abrupt smooth boundary.

C1 13-40"--Pale brown (10YR 6/3) stratified loam and fine sandy loam, brown (10YR 4/3) moist; with thin seams of dark grayish brown (10YR 4/2) moist; massive, soft, very friable; salt coatings in seams, and in pores; calcareous, moderately alkaline; clear smooth boundary.

C2 40-60"--Light brownish gray (10YR 6/2) silty clay loam, dark grayish brown (10YR 4/2) moist; massive; hard, firm, calcareous.

The A horizon ranges from fine sandy loam to silty clay loam in texture. Dark salt concretions occur in the upper C horizons only when exposed on cut banks for considerable time. These soils are usually more than 40 inches deep but may be underlain by contrasting materials or bedrock between 40 to 60 inches in places. Fine filaments or threads of lime may be present throughout part or all of the C horizon.

Reaction ranges from mildly alkaline in the surface to strongly alkaline in parts of the subsoil.

alkaline in parts of the aquifer.

Reaction ranges from mildly alkaline in the entire to strongly

of lime may be present throughout part or all of the C horizon.

or bedrock between 40 to 60 inches in depth. Fine fragments or fragments

more than 40 inches deep but may be augmented by constructing materials

exposed on cut banks for considerable time. These soils are usually

texture. Dark salt concretions occur in the upper C horizons only when

The A horizon ranges from fine sandy loam to silty clay loam in

granular brown (10YR 4/3) moist; massive; hard, firm, calcareous.

CS 40-60"--Light brownish gray (10YR 6/2) silty clay loam, dark

gray (10YR 4/3) moist; massive; hard, firm, calcareous;

moderately alkaline; clear

smooth boundary.

AB 15-40"--Brown (10YR 5/3) silty clay loam, dark brown (10YR 4/3)

moist; massive; soft, very friable; salt constant

throughout (10YR 4/3) moist; with fine seams of dark grayish brown

BC 40-45"--Pale brown (10YR 6/3) stratified loam and fine sandy loam,

very dark grayish brown (10YR 3/2) moist; massive; soft, very friable;

moderately alkaline; clear

smooth boundary.

C1 45-60"--Brown (10YR 5/3) light loam, dark brown (10YR 4/3) moist;

massive; soft, very friable; calcareous; sprinkle

clear smooth boundary.

C2 60-72"--Brown (10YR 5/3) light loam, dark brown (10YR 4/3) moist;

weak fine granular structure; soft, very friable; calcareous;

clear smooth boundary.

38 - Havre loam, 0 to 3 percent slopes.--This is a deep, well drained soil on floodplains and low terraces at elevations of 6,000 to 7,000 feet. It formed in mixed alluvium. The average annual precipitation is about 16 inches, average annual air temperature is about 44 degrees F., and average frost-free period is about 80 to 105 days.

Typically the surface layer is a brown light loam about 13 inches thick. The subsurface layer is a pale brown stratified loam and fine sandy loam about 27 inches thick. The underlying layer is a light brownish gray silty clay loam to over 60 inches.

Included in this unit are small areas of Hagga loam and Glendive fine sandy loam both having slopes of 0 to 3 percent.

Permeability is moderate. Effective rooting depth is 60 inches or more. Available water capacity is high. Organic matter content in the surface is medium. Surface runoff is slow and erosion hazard is slight.

This soil is used for irrigated pasture, livestock grazing, recreation, and wildlife habitat.

The Havre soils have moderate limitations for sanitary facilities due to flood hazard and severe limitations for community development and recreation areas due to flood hazard. Havre soils are fair sources for road fill material due to low strength and moderate shrink-swell. It is a good source for topsoil.

(Capability Unit, IIIe irrigated; IIIc dryland; Range Site, Foothill Swale.)

38C - Havre loam, 3 to 8 percent slopes.--This is a deep, well drained soil on floodplains and low terraces at elevations of 6,000 to 7,000 feet. It formed in mixed alluvium. The average annual precipitation is about 16 inches, average annual air temperature is about 44 degrees F., and average frost-free period is about 80 to 105 days.

Typically the surface layer is a brown light loam about 13 inches thick. The subsurface layer is a pale brown stratified loam and fine sandy loam about 27 inches thick. The underlying layer is a light brownish gray silty clay loam to over 60 inches.

Included in this unit are small areas of Hagga loam and Glendive fine sandy loam both having slopes of 3 to 8 percent.

Permeability is moderate. Effective rooting depth is 60 inches or more. Available water capacity is high. Organic matter content in the surface is medium. Surface runoff is slow and erosion hazard is slight.

This soil is used for irrigated pasture, livestock grazing, recreation, and wildlife habitat.

The Havre soils have moderate limitations for sanitary facilities due to flood hazard and severe limitations for community development and recreation areas due to flood hazard. Havre soils are fair sources for road fill material due to low strength and moderate shrink-swell. It is a good source for topsoil.

(Capability Unit, IVe; Range Site, Foothill Swale.)

alluvial fan on throughout and low terraces at elevations of 6,000 to 7,000 feet. It formed in mixed alluvium. The average annual precipitation is about 16 inches, average annual air temperature is about 44 degrees F., and average frost-free period is about 80 to 100 days.

Typically the surface layer is a brown light loam about 13 inches thick. The subsurface layer is a pale brown structured loam and 15 inches thick. The subsoil is about 25 inches thick. The underlying layer is a light very stony clay loam to over 60 inches.

Included in this unit are small areas of Argga loam and Granitic promontories very stony clay loam to over 60 inches.

Permeability is moderate. Effective rooting depth is 60 inches or more. Available water capacity is high. Organic matter content is moderate. Surface runoff is slow and erosion hazard is slight.

Most of this unit is used for irrigated pasture, livestock grazing, and wildlife habitat.

The Nevada soils have moderate limitations for community development and for use as irrigated pasture, and slight limitations for community development and recreation areas due to flood hazard. Steep soils are fair sources for recreation areas due to flood hazard. If adequate measures are taken to overcome the limitations, the soils are good sources for pasture.

(Capability Unit, IVe; Range Site, Foothill Grade.)

SOILS-8
MAY 1972
CODE SOILS-12

(1) Tentative - subject to revision

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL SURVEY INTERPRETATIONS

Rio Blanco Co., Colo

KEYING ONLY
ORD NO. | CONTROL WORD | NO.
MLRA | 001
STATE | 011

MLRA(S) 48 | KIND OF UNIT SERIES | UNIT NAME (HAVRE) 38
STATE COLORADO | RECORD NO. | AUTHOR(S) ZVA | DATE 4-75 | REVISED | UNIT MODIFIER

CLASSIFICATION AND BRIEF SOIL DESCRIPTION

THE HAVRE SERIES CONSISTS OF DEEP, WELL DRAINED SOILS FORMED IN CALCAREOUS, MIXED, ALLUVIUM ON FLOODPLAINS AND LOW TERRACES. TYPICALLY THE SURFACE IS A LOAM ABOUT 13 INCHES THICK. THE UNDERLYING LAYER IS A STRATIFIED LOAM WITH LOAMY FINE SAND, ABOUT 22 INCHES THICK. THE SUBSTRATA IS A SILTY CLAY LOAM TO OVER 60 INCHES. ELEVATION IS 6000 TO 7000 FEET. NATURAL VEGETATION IS SAGE AND SHORTGRASSES. AVERAGE ANNUAL PRECIPITATION IS ABOUT 16 INCHES. FROST FREE SEASON IS 85 TO 110 DAYS. SLOPES ARE 0 TO 8 PERCENT.

ESTIMATED SOIL PROPERTIES

	FOOTNOTE	DEPTH (IN.)	USDA TEXTURE	UNIFIED	AASHO	FRACT. >3 IN. (PCT)	PERCENT OF MATERIAL LESS THAN 3 IN. PASSING SIEVE 4	10	40	200	LIQUID LIMIT	PLASTICITY INDEX
PROP 041		0-13	L	ML	A-4	0	95-100	90-100	85-95	60-75	20-30	NP-10
042		13-40	SR-L-LFS	ML	A-4	0	95-100	90-100	85-95	50-75	20-30	NP-10
043		40-60	SICL	CL	A-6, A-7	0	95-100	85-100	90-100	80-95	30-50	20-30

	DEPTH (IN.)	PERMEABILITY (IN/HR)	AVAILABLE WATER CAPACITY (IN/IN)	SOIL REACTION (pH)	SALINITY (MMHOS/CM)	SHRINK-SWELL POTENTIAL	CORROSIVITY STEEL	CORROSIVITY CONCRETE	EROSION FACTORS K	EROSION FACTORS T	WIND EROD. GROUP
PROP 051		0.6-2.0	0.19-0.21	7.4-8.4	—	LOW	HIGH	LOW			
052	SAME DEPTH AS ABOVE	0.6-2.0	0.19-0.21	7.4-8.4	—	LOW	HIGH	LOW			
053		0.2-0.6	0.19-0.21	7.4-8.4	—	MODERATE	HIGH	LOW			

	FLOODING FREQUENCY	FLOODING DURATION	FLOODING MONTHS	HIGH WATER TABLE DEPTH (FT)	HIGH WATER TABLE KIND	HIGH WATER TABLE MONTHS	CEMENTED PAN DEPTH (IN)	CEMENTED PAN HARDNESS	BEDROCK DEPTH (IN)	BEDROCK HARDNESS	SUBSIDENCE INITIAL (IN)	SUBSIDENCE TOTAL (IN)	HYD GRP	POTENTIAL FROST ACTION
PROP 061	RARE	BRIEF	MAY-JUNE	>6			—		>60		—		C	LOW

	FOOTNOTES	SANITARY FACILITIES	KEYING ONLY	FOOTNOTES	SOURCE MATERIAL
SEPTIC 071	SEPTIC TANK ABSORPTION FIELDS	MODERATE - PERCS SLOWLY, FLOODS	FILL 191	ROADFILL	FAIR-LOW STRENGTH, SHRINK-SWELL
LAGOON 081	SEWAGE LAGOONS	0-7%: MODERATE - SEEPAGE 7%+: SEVERE - SLOPE	SAND 201	SAND	UNSUITED
091	SANITARY LANDFILL (TRENCH)	MODERATE - FLOODS	GRAVEL 211	GRAVEL	UNSUITED
SANARE 101	SANITARY LANDFILL (AREA)	MODERATE - FLOODS	SOIL 221	TOPSOIL	GOOD
COVER 111	DAILY COVER FOR LANDFILL	GOOD			

	FOOTNOTES	COMMUNITY DEVELOPMENT		FOOTNOTES	WATER MANAGEMENT
EXCAV 121	SHALLOW EXCAVATIONS	MODERATE - FLOODS	PONDRS 231	POND RESERVOIR AREA	SEEPAGE
DWEL 131	DWELLINGS WITHOUT BASEMENTS	SEVERE - FLOODS	DIKES 241	EMBANKMENTS DIKES AND LEVEES	LOW STRENGTH
DWEL 141	DWELLINGS WITH BASEMENTS	SEVERE - FLOODS	PONDAQ 251	EXCAVATED PONDS AQUIFER FED	NO WATER
BLDGS 151	SMALL COMMERCIAL BUILDINGS	SEVERE - FLOOD	DRAIN 261	DRAINAGE	FAVORABLE
ROADS 161	LOCAL ROADS AND STREETS	MODERATE - SHRINK-SWELL, FLOODS	IRRIG 271	IRRIGATION	FAVORABLE
			TERRAC 281	TERRACES AND DIVERSIONS	FLOODS
	FOOTNOTES	REGIONAL INTERPRETATIONS	WATERW 291	GRASSED WATERWAYS	NOT NEEDED
REGION 171					
REGION 181					

SOIL SURVEY INTERPRETATIONS

| | | |

Tentative - subject to revision

(2)

UNIT NAME: (HAVRE) 3Y

UNIT MODIFIER:

RECREATION

KEYING ONLY	NO.		FOOTNOTE
	301	CAMP AREAS	SEVERE - FLOODS
PICNIC	311	PICNIC AREAS	MODERATE - FLOODS
PLAYGD	321	PLAYGROUNDS	0-6%: MODERATE - FLOODS 6-8%: SEVERE - SLOPES
PATHS	331	PATHS AND TRAILS	SLIGHT

CAPABILITY AND PREDICTED YIELDS - CROPS AND PASTURE (HIGH LEVEL MANAGEMENT)

CROPHD 451

CROPS 341

FOOTNOTE	CLASS-DETERMINING PHASE	CAPABILITY NIRR	CAPABILITY IRR.	NIRR	IRR.	NIRR	IRR.	NIRR	IRR.	NIRR	IRR.	NIRR	IRR.	NIRR	IRR.	NIRR	IRR.
	0-1	4C	3C														
	1-3	4C	3E														
	3-8	4E	4E														

WOODLAND SUITABILITY

WOODS 361

FOOTNOTE	CLASS-DETERMINING PHASE	ORD SYM	MANAGEMENT PROBLEMS: EROSION HAZARD	EQUIP. LIMIT	SEEDLING MORT'Y.	WINDTH. HAZARD	PLANT COMPET.	POTENTIAL PRODUCTIVITY: IMPORTANT TREES	SITE INDEX	TREES TO PLANT
								NONE		

WIND BREAKS

WINDBK 381

FOOTNOTE	CLASS-DETERMINING PHASE	SPECIES	HT	SPECIES	HT	SPECIES	HT	SPECIES	HT
		NONE							

WILDLIFE HABITAT SUITABILITY

WILDLF 391

FOOTNOTE	CLASS-DETERMINING PHASE	POTENTIAL FOR HABITAT ELEMENTS: GRAIN & SEED	GRASS & LEGUME	WILD HERB.	HARDWD TREES	CONIFER PLANTS	SHRUBS	WETLAND PLANTS	SHALLOW WATER	POTENTIAL AS HABITAT FOR: OPENLAND WILDLIFE	WOODLAND WILDLIFE	WETLAND WILDLIFE	RANGELAND WILDLIFE
	NON IRRIGITED	POOR	FAIR	FAIR	—	—	FAIR	POOR	V. POOR	FAIR	—	V. POOR	FAIR
	IRRIGATED 0-3%	FAIR	FAIR	FAIR	—	—	FAIR	POOR	V. POOR	FAIR	—	V. POOR	FAIR
	IRRIGATED 3-8%	POOR	POOR	FAIR	—	—	FAIR	POOR	V. POOR	POOR	—	V. POOR	FAIR

POTENTIAL NATIVE PLANT COMMUNITY (RANGELAND OR FOREST UNDERSTORY VEGETATION)

PHASE 401

PLANT 411

FOOTNOTE	COMMON PLANT NAME	PLANT SYMBOL (NLSPN)	PERCENTAGE COMPOSITION (DRY WEIGHT) BY CLASS DETERMINING PHASE: ALL
1	BASIN WILDRYE	ELCI2	45
	BLUE GRASSES	POA++	10
	WESTERN WHEATGRASS	AGSM	10
	SQUIRRELTAIL	SIHY	5
	OTHER PERENNIAL GRASSES	PPGG	4
	FLEABANE	ERIGE2	2
	OTHER PERENNIAL FORBS	PPFF	3
	FOURWING SALTBUSH	ATCA2	10
	BIG SAGEBRUSH	ARTR2	4
	RUBBER RABBITBRUSH	CHNA2	4
	OTHER SHRUBS	SSSS	3

DUC 431

POTENTIAL PRODUCTION (LBS./AC. DRY WT):

FAVORABLE YEARS	2500
NORMAL YEARS	2000
UNFAVORABLE YEARS	1500

NOTES 441

FOOTNOTES

SYM.	
1	RANGE SITE IS FOOTHILL SWALE

| | | |

Tentative - subject to revision

LITHIC HAPLOBOROLL LOAMY-SKELETAL, MIXED UNNAMED SERIES (61)

The 61 series consists of shallow, well drained soils that formed in sandstone residuum on upland slopes and ridge tops. The 61 soils have slopes of 5 to 50 percent. Mean annual precipitation is about 18 inches and the mean annual air temperature is about 42 degrees F.

Typical pedon of 61 is very channery loam, 5 to 50 percent slopes, NE¼ NW¼ Section 22, T1N, R99W.

Tentative - subject to revision

FIFTH HARTOBOROLT LOAM-SKELETAL, MIXED UNNAMED SERIES (CJ)

The CJ series consists of shallow, well drained soils that
formed in sandstone residuum on dipland slopes and ridge tops.
The CJ soils have 5 to 20 percent. Mean annual precipitation
is about 18 inches and the mean annual air temperature is about 54
degrees F.

Typical pedon of CJ is very channery loam, 5 to 20 percent
slopes, NE¼ NW¼ section 25, T1N, R99W.

A1 0 to 6 inches; dark brown (10YR 3/3) very channery loam, dark brown (10YR 4/3) dry; moderate medium granular structure; hard, very friable, nonsticky, slightly plastic, 30 percent channery, 10 percent flags; noncalcareous, mildly alkaline; gradual smooth boundary.

B2 6 to 10 inches; dark brown (10YR 3/3) very flaggy loam, dark brown (10YR 4/3) dry; weak fine subangular blocky structure parting to moderate granules; hard, very friable, nonsticky, slightly plastic; 40 percent channery and 25 percent flags; slightly calcareous, mildly alkaline; gradual smooth boundary.

C 10 to 16 inches; dark brown (10YR 4/3) extremely flaggy loam, brown (10YR 5/3) dry; weak fine granular structure; slightly hard, very friable, nonsticky, slightly plastic; 45 percent channery and 35 percent flags with lime coats on underside; strongly calcareous, moderately alkaline; gradual smooth boundary.

R 16 inches; hard sandstone; depth to lime varies 6 to 18 inches.

Unnamed Lithic Haploboroll loamy-skeletal mixed, 5 to 50 percent slopes (61).--This is a shallow, well drained soil on northern mountain slopes and ridge tops at elevations of about 6,900 to 7,800 feet. It formed in sandstone residuum. The average annual precipitation is about 18 inches, average annual air temperature 42°F. and average frost-free period is about 80 days.

Typically the surface layer is dark brown very channery loam about 6 inches thick. The subsoil is dark brown very flaggy loam about 4 inches thick. The substratum is dark brown extremely flaggy loam about 6 inches thick and overlies hard sandstone. Lime coats the underside of the coarse fragments in the substratum.

Included in this unit are small areas of soils similar to 61 except they are 20 to 30 inches to sandstone, Yamac and Rentsac.

Permeability is moderate. Effective rooting depth is 20 inches or less. Available water capacity is moderate. Organic matter content in the surface layer is medium. Surface runoff is moderate and erosion hazard is slight to moderate.

This soil is used for summer livestock grazing and mule deer winter habitat. This soil has a severe limitation for sanitary facility uses due mainly to the depth to rock (this includes sewage lagoons, septic tank absorption fields, and landfills). Local roads and streets have a severe limitation also. This soil is a poor source of material for roadfill, topsoil due to thin layer, small stones and problems of area reclamation.
(Capability Unit, VIIs; Rangesite, Mountain Loam.)

Unnamed Lithic Haplocroll loamy-skeletal mixed, 2 to 20 percent slopes

Tentative - subject to revision

(45).—This is a shallow, well drained soil on mountain summits and ridges ranging in elevation from about 8,000 to 7,800 feet. Included in mapping are small areas of soils similar to Cathedral Unit, but that are deeper to bedrock. Permeability is moderate. Available water capacity is moderate. Organic matter content is low. Effective rooting depth is 20 inches or less. Runoff is rapid. Hazard of water erosion hazard is slight to moderate.

This soil is used for summer livestock grazing and wildlife habitat. This soil has a severe limitation for septic tank absorption fields, and landscaping, because fractured bedrock is at a depth of 10 to 20 inches. Local roads and streets have a severe limitation also. This soil is a poor source of material for roadfill, for low strength, and poor performance and problems of site reclamation.

(Cathedral Unit, VII; Rawlesite, Mountain Loam.)

U.S. SOILS 5
I.V. MAY 1972
NSSL CODE SOILS-1

Lithic Haploborell
loamy-skeletal, mixed

(1) Tentative - subject to revision

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL SURVEY INTERPRETATIONS

KEYING ONLY: RECORD NO. | CONTROL WORD MLRA 001, STATE 011

MLRA(S) 48 | KIND OF UNIT SERIES | UNIT NAME GL LITHIC HAPLOBOROLL, RIO BLANCO CO., COLO.

STATE COLORADO | RECORD NO. | AUTHOR(S) WSH | DATE 7-75 | REVISED | UNIT MODIFIER

CLASSIFICATION AND BRIEF SOIL DESCRIPTION

021 THE GL SERIES CONSIST OF SHALLOW, WELL DRAINED SOILS FORMED IN SANDSTONE RESIDUUM ON MOUNTAIN RIDGES AND UPPER SIDESLOPES. TYPICALLY THE SURFACE LAYER IS A VERY CHANNERY LOAM ABOUT 6 INCHES THICK. THE SUBSOIL IS A VERY FLAGGY LOAM ABOUT 4 INCHES THICK. THE UNDERLYING LAYER IS AN EXTREMELY FLAGGY LOAM ABOUT 6 INCHES THICK AND OVERLIES SANDSTONE. NATURAL VEGETATION IS MOSTLY BRUSH WITH SCATTERED PINION AND JUNIPER. AVERAGE ANNUAL PRECIPITATION IS ABOUT 18 INCHES AND THE FROST FREE IS ABOUT 80 DAYS. SLOPES ARE 5 TO 50 PERCENT.

ESTIMATED SOIL PROPERTIES

	FOOTNOTE	DEPTH (IN.)	USDA TEXTURE	UNIFIED	AASHO	FRACT. >3 IN. (PCT)	PERCENT OF MATERIAL LESS THAN 3 IN. PASSING SIEVE 4	10	40	200	LIQUID LIMIT	PLASTICITY INDEX
PROP 041		0-6	CNV-L, CN-L, CNV-FSL	ML, SM	A-4	0-5	60-90	45-75	30-70	25-55	25-35	NP-10
2		6-10	FLY-L, FLY-FSL	SM	A-4	25-45	55-85	40-55	30-50	15-40	25-35	NP-10
3		10-16	FLX-L, FLX-SL	SM	A-4	45-55	55-80	45-55	30-50	15-40	20-30	NP-10
4		16	UWB									
5												
6												

	DEPTH (IN.)	PERMEABILITY (IN/HR)	AVAILABLE WATER CAPACITY (IN/IN)	SOIL REACTION (pH)	SALINITY (MMHOS/CM)	SHRINK-SWELL POTENTIAL	CORROSIVITY STEEL	CORROSIVITY CONCRETE	EROSION FACTORS K	EROSION FACTORS T	WIND EROD. GROUP
PROP 051		0.6-2.0	0.14-0.16	7.4-7.8	—	LOW	MODERATE	LOW	.10	1	8
2	SAME DEPTH AS ABOVE	0.6-2.0	0.12-0.14	7.4-7.8	—	LOW	MODERATE	LOW	.10		
3		2.0-6.0	0.08-0.10	7.9-8.4	—	LOW	HIGH	LOW	.10		
4											
5											
6											

	FLOODING FREQUENCY	FLOODING DURATION	FLOODING MONTHS	HIGH WATER TABLE DEPTH (FT)	HIGH WATER TABLE KIND	HIGH WATER TABLE MONTHS	CEMENTED PAN DEPTH (IN)	CEMENTED PAN HARDNESS	BEDROCK DEPTH (IN)	BEDROCK HARDNESS	SUBSIDENCE INITIAL (IN)	SUBSIDENCE TOTAL (IN)	HYD GRP	POTENTIAL FROST ACTION
PROP 061	NONE			>6			—		10-20	RIPPABLE	—		D	LOW

	FOOTNOTES	SANITARY FACILITIES
SEPTIC 071	SEPTIC TANK ABSORPTION FIELDS	5-15%: SEVERE - DEPTH TO ROCK
2		15+%: SEVERE - SLOPE, DEPTH TO ROCK
3		
4		
5		
LAGOON 081	SEWAGE LAGOONS	5-7%: SEVERE - DEPTH TO ROCK, SMALL STONES
2		7+%: SEVERE - SLOPE, DEPTH TO ROCK, SMALL STONES
3		
4		
5		
H 091	SANITARY LANDFILL (TRENCH)	5-25%: SEVERE - DEPTH TO ROCK
2		25+%: SEVERE - SLOPE, DEPTH TO ROCK
3		
4		
5		
SANARE 101	SANITARY LANDFILL (AREA)	5-8%: SLIGHT
2		8-15%: MODERATE - SLOPE
3		15+%: SEVERE - SLOPE
4		
5		
COVER 111	DAILY COVER FOR LANDFILL	5-15%: POOR - THIN LAYER, AREA RECLAIM, SMALL STONES
2		15+%: POOR - SLOPE, AREA RECLAIM, SMALL STONES, THIN LAYER
3		
4		
5		

	FOOTNOTES	COMMUNITY DEVELOPMENT
EXCAV 121	SHALLOW EXCAVATIONS	5-15%: SEVERE - DEPTH TO ROCK, SMALL STONES
2		15+%: SEVERE - SLOPE, DEPTH TO ROCK, SMALL STONES
3		
4		
5		
DWEL 131	DWELLINGS WITHOUT BASEMENTS	5-15%: SEVERE - DEPTH TO ROCK
2		15+%: SEVERE - SLOPE, DEPTH TO ROCK
3		
4		
5		
DWEL 141	DWELLINGS WITH BASEMENTS	5-15%: SEVERE - DEPTH TO ROCK
2		15+%: SEVERE - SLOPE, DEPTH TO ROCK
3		
4		
5		
BLDGS 151	SMALL COMMERCIAL BUILDINGS	5-8%: SEVERE - DEPTH TO ROCK
2		8+%: SEVERE - SLOPE, DEPTH TO ROCK
3		
4		
5		
ROADS 161	LOCAL ROADS AND STREETS	5-15%: SEVERE - DEPTH TO ROCK
2		15+%: SEVERE - SLOPE, DEPTH TO ROCK
3		
4		
5		

	FOOTNOTES	REGIONAL INTERPRETATIONS
H 171		
2		
3		
4		
REGION 181		
2		
3		
4		

KEYING ONLY

	FOOTNOTES	SOURCE MATERIAL
FILL 191	ROADFILL	5-25%: POOR - THIN LAYER, AREA RECLAIM
2		25+%: POOR - SLOPE, THIN LAYER, AREA RECLAIM
3		
4		
5		
SAND 201	SAND	UNSUITED
2		
3		
4		
5		
GRAVEL 211	GRAVEL	UNSUITED
2		
3		
4		
5		
SOIL 221	TOPSOIL	5-15%: POOR - SMALL STONES, AREA RECLAIM, THIN LAYER
2		15+%: POOR - SLOPE, SMALL STONES, AREA RECLAIM, THIN LAYER
3		
4		
5		

	FOOTNOTES	WATER MANAGEMENT
PONDRS 231	POND RESERVOIR AREA	SLOPE, DEPTH TO ROCK
2		
3		
4		
5		
DIKES 241	EMBANKMENTS DIKES AND LEVEES	THIN LAYER
2		
3		
4		
5		
PONDAQ 251	EXCAVATED PONDS AQUIFER FED	NO WATER
2		
3		
4		
5		
DRAIN 261	DRAINAGE	
2		
3		
4		
5		
IRRIG 271	IRRIGATION	
2		
3		
4		
5		
TERRAC 281	TERRACES AND DIVERSIONS	SLOPE, DEPTH TO ROCK
2		
3		
4		
5		
WATERW 291	GRASSED WATERWAYS	ROOTING DEPTH, SLOPE
2		
3		
4		
5		

SOIL SURVEY INTERPRETATIONS

Tentative – subject to revision

KEYING ONLY — RECORD NO. / CONTROL WORD / NO.

UNIT NAME: 61 LITHIC HAPLOBOROLL
UNIT MODIFIER:

(2)

RECREATION

KEYING ONLY		FOOTNOTE	KEYING ONLY		FOOTNOTE
	301	5-8%: SLIGHT	PLAYGD	321	5-6%: SEVERE - SMALL STONES
	2	8-15%: MODERATE - SLOPE		2	6+%: SEVERE - SLOPE, SMALL
	3	15+%: SEVERE - SLOPE		3	STONES
	4			4	
	5			5	
PICNIC	311	5-8%: SLIGHT	PATHS	331	5-15%: SLIGHT
	2	8-15%: MODERATE - SLOPE		2	15-25%: MODERATE - SLOPE
	3	15+%: SEVERE - SLOPE		3	25+%: SEVERE - SLOPE
	4			4	
	5			5	

CAMP AREAS — PICNIC AREAS — PLAYGROUNDS — PATHS AND TRAILS

CAPABILITY AND PREDICTED YIELDS - CROPS AND PASTURE (HIGH LEVEL MANAGEMENT)

FOOTNOTE

		CLASS-DETERMINING PHASE	CAPABILITY NIRR	CAPABILITY IRR.														
CROPHD	451																	
	2																	
	3																	
CROPS	341	ALL	75															
	2																	
	3																	
	4																	
	5																	
	6																	
	7																	
	8																	
	9																	
	351																	
	2																	
	3																	

WOODLAND SUITABILITY

FOOTNOTE

		CLASS-DETERMINING PHASE	ORD SYM	MANAGEMENT PROBLEMS: EROSION HAZARD	EQUIP. LIMIT	SEEDLING MORT'Y.	WINDTH. HAZARD	PLANT COMPET.	POTENTIAL PRODUCTIVITY: IMPORTANT TREES	SITE INDEX	TREES TO PLANT
WOODS	361	ALL							NONE		
	2										
	3										
	4										
	5										
	6										
	7										
	8										
	9										
	371										
	2										
	3										
	4										
	5										
	6										

WIND BREAKS

FOOTNOTE

		CLASS-DETERMINING PHASE	SPECIES	HT	SPECIES	HT	SPECIES	HT	SPECIES	HT
WINDBK	381	ALL	NONE							
	2									
	3									
	4									
	5									
	6									

WILDLIFE HABITAT SUITABILITY

FOOTNOTE

		CLASS-DETERMINING PHASE	POTENTIAL FOR HABITAT ELEMENTS: GRAIN & SEED	GRASS & LEGUME	WILD HERB.	HARDWD TREES	CONIFER PLANTS	SHRUBS	WETLAND PLANTS	SHALLOW WATER	POTENTIAL AS HABITAT FOR: OPENLAND WILDLIFE	WOODLAND WILDLIFE	WETLAND WILDLIFE	RANGELAND WILDLIFE
WILDLF	391	ALL	V. POOR	V. POOR	FAIR	—	—	GOOD	V. POOR	V. POOR	POOR	FAIR	V. POOR	FAIR
	2													
	3													
	4													
	5													
	6													

POTENTIAL NATIVE PLANT COMMUNITY (RANGELAND OR FOREST UNDERSTORY VEGETATION)

FOOTNOTE

		COMMON PLANT NAME	PLANT SYMBOL (NLSPN)	PERCENTAGE COMPOSITION (DRY WEIGHT) BY CLASS DETERMINING PHASE
PHASE	401			
	2			
PLANT	411	BLUEBUNCH WHEATGRASS	AGSP	20
	2	INDIAN RICEGRASS	OPHY	5
	3	NEEDLE AND THREAD	STCO4	5
	4	JUNE GRASS	KOCR	5
	5	WESTERN WHEATGRASS	AGSM	10
	6	OTHER PERENNIAL GRASSES	PPGG	5
	7	ARROWLEAF BALSAMROOT	BASA3	2
	8	ROCK MNT. PENSTEMON	PEST2	2
	9	GROUNDEL	SENEC	1
	421	OTHER PERENNIAL FORBS	PPFF	5
	2	MOUNTAIN MAHOGANY	CEMO2	15
	3	SERVICE BERRY	AMAL2	10
	4	ANTELOPE BITTERBRUSH	PUTR2	5
	5	BIG SAGEBRUSH	ARTR2	5
	6	OTHER SHRUBS	SSSS	5
PRODUC	431	POTENTIAL PRODUCTION (LBS./AC. DRY WT): FAVORABLE YEARS		1500
	2	NORMAL YEARS		1100
	3	UNFAVORABLE YEARS		700

FOOTNOTES

		SYM.	
NOTES	441	1	RANGE SITE IS LOAMY, SLOPES
	2		
	3		
	4		
	5		
	6		
	7		

Tentative - subject to revision

PICEANCE SERIES

The Piceance series consists of moderately deep, well drained soils that formed in residuum from sandstone and modified with aeolian material. Piceance soils are on upland slopes and ridges and have slopes of 5 to 15 percent. Mean annual precipitation is about 14 to 18 inches and the mean annual air temperature is about 43 degrees F.

Piceance soils are similar to Forelle, Yamac, and Kinnear. Forelle, Yamac, and Kinnear soils are deep and do not have bedrock above 40 inches. Kinnear soils occur in a wormer temperature zone.

Typical pedon of Piceance fine sandy loam, 5 to 25 percent, NE¼, NE¼ Section 33, T2S, R99W.

A1 0-4"--Brown (10YR 4/3) fine sandy loam, dark brown (10YR 3/3) moist; moderate medium granular structure; soft, friable, slightly sticky, slightly plastic; many fine and very fine roots; non-calcareous, mildly alkaline (pH 7.4); clear wavy boundary.

B1 4-10"--Brown (10YR 5/3) very fine sandy loam, dark brown (10YR 4.3) moist; weak medium subangular blocky structure; slightly hard, friable, slightly sticky, slightly plastic; many fine and very fine roots; non calcareous, mildly alkaline (pH 7.5); clear wavy boundary.

B2 10-22"-- Light yellowish brown (10YR 6/4) loam, yellowish brown (10YR 5/4) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky, slightly plastic; many fine roots; calcareous, mildly alkaline (pH 7.6); clear wavy boundary.

Cca 22-37"--Very pale brown (10YR 7/3) extremely channery sandy loam, pale brown (10YR 6/3) moist; massive; slightly hard, friable, nonsticky, nonplastic; some visible calcium carbonate as concretions; strongly calcareous, strongly alkaline (pH 8.6); clear wavy boundary.

70--Piceance fine sandy loam, 5 to 15 percent.--This is a moderately deep, well drained soil on upland slopes and ridges at elevations of 6,500 to 7,500 feet. It formed in residuum from sandstone and modified with aeolian material. The average annual precipitation is about 15 to 17 inches, average annual air temperature is about 43 degrees F., and average frost-free period is about 80 to 105 days.

Typically the surface layer is brown fine sandy loam about 10 inches thick. The subsoil is light yellowish brown loam about 12 inches thick. The substratum is very pale brown very channery sandy loam about 15 inches thick and overlies hard sandstone. There is a layer of strong lime accumulation in the lower part of the subsoil and substratum.

Included in this unit are small areas of Yamac loam, Forelle loam, and Redcreek-Rentsac complex all having slopes of 5 to 15 percent. Also, included in this unit are small areas of soils which have darker surface layers, which occur at upper elevations of this unit.

Permeability is moderately rapid. Effective rooting depth is 20 to 40 inches. Available water capacity is moderate. Organic matter content in the surface is medium. Surface runoff is slow to medium and erosion hazard slight to moderate.

This soil is for livestock grazing, wildlife habitat, and limited recreation.

recreation.

Fine soil is for livestock grazing, wildlife habitat, and limited general plant growth.

In the surface is medium. Surface runoff is slow to medium and erosion is slight to moderate.

to 40 inches. Available water capacity is moderate. Organic matter content

Permeability is moderately rapid. Effective rooting depth is 20 inches, which occur as upper elevations of this unit.

included in this unit are small areas of soils which have darker surface and Redcreek-Henfarc complex all having slopes of 2 to 12 percent. Also, included in this unit are small areas of Xemac loam, Portville loam,

0--Presence time enough loam, 2 to 12 percent.--This is a moderately deep, well drained soil on ridgetops and rights of elevations of 2,200 to 7,200 feet. It formed in residuum from sandstone and modified with moderate material. The average annual precipitation is about 12 to 17 inches, average annual air temperature is about 44 degrees F., and average frost-free period is about 80 to 105 days.

Typically the surface layer is dark grayish loam about 10 inches thick. The subsoil is light yellowish brown loam about 12 inches thick. The substratum is very pale brown very channery sandy loam about 12 inches thick and overlies hard sandstone. There is a layer of strong

Permeability - applies to Venango

This soil has moderate to severe limitations for community development and sanitary facilities due to depth to bedrock. Recreational areas have slight to moderate limitations due to dustiness and depth to rock. This soil is a fair to poor source for topsoil and road fill material due to depth to rock and borrow area reclamation. (Capability Unit, VIe; Range site, Rolling Loam.)

S-SOILS-5
V. MAY 1972
LF CODE SOILS-12

(1) Tentative - subject to revision

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL SURVEY INTERPRETATIONS

KEYING ONLY: RECORD NO. | CONTROL WORD MLRA 001, STATE 011

MLRA(S) 48 | KIND OF UNIT SERIES | UNIT NAME (70) RIO BLANCO, CO PICEANCE
STATE COLORADO | RECORD NO. | AUTHOR(S) DKA | DATE 1-73 | REVISED | UNIT MODIFIER

CLASSIFICATION AND BRIEF SOIL DESCRIPTION (021)

(031) THE PICEANCE SERIES CONSISTS OF MODERATELY DEEP, WELL DRAINED SOILS FORMED IN RESIDUUM FROM SANDSTONE AND MODIFIED WITH AEOLIAN MATERIAL. THE SURFACE IS A VERY FINE SANDY LOAM ABOUT 10 INCHES THICK. THE SUBSOIL IS A LOAM ABOUT 12 INCHES THICK. THE SUBSTRATUM IS A VERY CHANNERY SANDY LOAM ABOUT 15 INCHES THICK AND OVERLIES HARD SANDSTONE. NATURAL VEGETATION IS SAGEBRUSH AND SHORTGRASSES. AVERAGE ANNUAL PRECIPITATION IS ABOUT 16 INCHES. FROST FREE SEASON IS 80 TO 105 DAYS. SLOPES ARE 5 TO 15 PERCENT.

ESTIMATED SOIL PROPERTIES

	FOOTNOTE	DEPTH (IN.)	USDA TEXTURE	UNIFIED	AASHO	FRACT. >3 IN. (PCT)	PERCENT OF MATERIAL LESS THAN 3 IN. PASSING SIEVE 4	10	40	200	LIQUID LIMIT	PLASTICITY INDEX
PROP 041		0-10	VFSL, L	ML, ML-CL	A-4	0	95-100	90-100	75-90	50-75	20-30	NP-10
042		10-22	VFSL, L	CL, ML-CL	A-4; A-6	0	95-100	90-100	75-90	50-75	20-35	5-15
043		22-37	CNV-VFSL, CNV-L	GM	A-4	5	45-60	35-45	30-45	20-35	15-20	NP-10
044		37	UWB									
045												
046												

	DEPTH (IN.)	PERMEABILITY (IN/HR)	AVAILABLE WATER CAPACITY (IN/IN)	SOIL REACTION (pH)	SALINITY (MMHOS/CM)	SHRINK-SWELL POTENTIAL	CORROSIVITY STEEL	CORROSIVITY CONCRETE	EROSION FACTORS K	EROSION FACTORS T	WIND EROD. GROUP
PROP 051		2.0-6.0	0.15-0.18	7.4-8.4	—	LOW	HIGH	LOW	.37	2	—
052	SAME DEPTH AS ABOVE	0.6-2.0	0.15-0.18	7.4-8.4	—	LOW	HIGH	LOW	.37		
053		2.0-6.0	0.07-0.09	7.9-9.0	—	LOW	HIGH	LOW	.15		
054											
055											
056											

	FLOODING FREQUENCY	FLOODING DURATION	FLOODING MONTHS	HIGH WATER TABLE DEPTH (FT)	HIGH WATER TABLE KIND	HIGH WATER TABLE MONTHS	CEMENTED PAN DEPTH (IN)	CEMENTED PAN HARDNESS	BEDROCK DEPTH (IN)	BEDROCK HARDNESS	SUBSIDENCE INITIAL (IN)	SUBSIDENCE TOTAL (IN)	HYD GRP	POTENTIAL FROST ACTION
PROP 061	NONE			>6			—		20-40	RIPPABLE	—		5	LOW

	FOOTNOTES	SANITARY FACILITIES
SEPTIC 071	SEPTIC TANK ABSORPTION FIELDS	SEVERE - DEPTH TO ROCK
LAGOON 081	SEWAGE LAGOONS	SEVERE - DEPTH TO ROCK
TRENCH 091	SANITARY LANDFILL (TRENCH)	SEVERE - DEPTH TO ROCK
SANARE 101	SANITARY LANDFILL (AREA)	5-8%: SLIGHT 8-15%: MODERATE - SLOPE
COVER 111	DAILY COVER FOR LANDFILL	FAIR - THIN LAYER, AREA RECLAIM

	FOOTNOTES	COMMUNITY DEVELOPMENT
EXCAV 121	SHALLOW EXCAVATIONS	SEVERE - DEPTH TO ROCK
DWEL 131	DWELLINGS WITHOUT BASEMENTS	MODERATE - DEPTH TO ROCK
DWEL 141	DWELLINGS WITH BASEMENTS	SEVERE - DEPTH TO ROCK
BLDGS 151	SMALL COMMERCIAL BUILDINGS	5-8%: MODERATE - DEPTH TO ROCK 8%+: SEVERE - SLOPE
ROADS 161	LOCAL ROADS AND STREETS	MODERATE - DEPTH TO ROCK

	FOOTNOTES	REGIONAL INTERPRETATIONS
REGION 171		
REGION 181		

KEYING ONLY		FOOTNOTES	SOURCE MATERIAL
FILL	191	ROADFILL	POOR - THIN LAYER
SAND	201	SAND	UNSUITED
GRAVEL	211	GRAVEL	UNSUITED
SOIL	221	TOPSOIL	POOR - AREA RECLAIM

	FOOTNOTES	WATER MANAGEMENT
PONDRS 231	POND RESERVOIR AREA	DEPTH TO ROCK, SLOPE
DIKES 241	EMBANKMENTS DIKES AND LEVEES	THIN LAYER
PONDAQ 251	EXCAVATED PONDS AQUIFER FED	NO WATER
DRAIN 261	DRAINAGE	
IRRIG 271	IRRIGATION	
TERRAC 281	TERRACES AND DIVERSIONS	DEPTH TO ROCK, SLOPE
WATERW 291	GRASSED WATERWAYS	DROUGHTY

SOIL SURVEY INTERPRETATIONS

Tentative = subject to revision

KEYING ONLY — RECORD NO. / CONTROL WORD / NO.

UNIT NAME: PICEANCE (2)
UNIT MODIFIER:

CONTROL WORD	NO.		FOOTNOTE
CAMPS	301	CAMP AREAS	5-8%: SLIGHT 8-15%: MODERATE - SLOPE
PICNIC	311	PICNIC AREAS	5-8%: SLIGHT 8-15%: MODERATE - SLOPE

RECREATION

KEYING ONLY			FOOTNOTE
PLAYGD	321	PLAYGROUNDS	5-6%: MODERATE - DEPTH TO ROCK 6%+: SEVERE - SLOPE
PATHS	331	PATHS AND TRAILS	SLIGHT

CAPABILITY AND PREDICTED YIELDS - CROPS AND PASTURE (HIGH LEVEL MANAGEMENT)

CONTROL WORD	NO.	CLASS-DETERMINING PHASE	CAPABILITY NIRR	CAPABILITY IRR.	NIRR	IRR.	NIRR	IRR.	NIRR	IRR.	NIRR	IRR.	NIRR	IRR.	NIRR	IRR.	NIRR	IRR.
CROPHD	451																	
CROPS	341	5-9 % 9-15 %	4E 6E															
	351																	

WOODLAND SUITABILITY

CONTROL WORD	NO.	CLASS-DETERMINING PHASE	ORD SYM	MANAGEMENT PROBLEMS: EROSION HAZARD	EQUIP. LIMIT	SEEDLING MORT'Y.	WINDTH. HAZARD	PLANT COMPET.	POTENTIAL PRODUCTIVITY: IMPORTANT TREES	SITE INDEX	TREES TO PLANT
WOODS	361								NONE		
	371										

WIND BREAKS

CONTROL WORD	NO.	CLASS-DETERMINING PHASE	SPECIES	HT	SPECIES	HT	SPECIES	HT	SPECIES	HT
WINDBK	381		NONE							

WILDLIFE HABITAT SUITABILITY

CONTROL WORD	NO.	CLASS-DETERMINING PHASE	POTENTIAL FOR HABITAT ELEMENTS: GRAIN & SEED	GRASS & LEGUME	WILD HERB.	HARDWD TREES	CONIFER PLANTS	SHRUBS	WETLAND PLANTS	SHALLOW WATER	POTENTIAL AS HABITAT FOR: OPENLAND WILDLIFE	WOODLAND WILDLIFE	WETLAND WILDLIFE	RANGELAND WILDLIFE
WILDLF	391	ALL	POOR	POOR	GOOD	—	—	GOOD	V. POOR	V. POOR	FAIR	—	V. POOR	GOOD

POTENTIAL NATIVE PLANT COMMUNITY (RANGELAND OR FOREST UNDERSTORY VEGETATION)

CONTROL WORD	NO.	COMMON PLANT NAME	PLANT SYMBOL (NLSPN)	PERCENTAGE COMPOSITION (DRY WEIGHT) BY CLASS DETERMINING PHASE: ALL
PHASE	401			
PLANT	411	BLUEBUNCH WHEATGRASS	AGSP	15
	2	WESTERN WHEATGRASS	AGSM	25
	3	NEEDLE AND THREAD	STCO4	5
	4	JUNEGRASS	KOCR	5
	5	SAND LUPINE	LUAM	2
	6	ROCKY MTN SWEETVETCH	HEBO	2
	7	PHLOX	PHLOX	1
	8	WILD BUCKWHEAT	ERIOG	1
	9	BIG SAGEBRUSH	ARTR2	30
	421	LOW RABBITBRUSH	CHVIL	5
	2	SERVICEBERRY	AMAL2	5
	3	OTHER PERENNIAL GRASSES	PPGG	5
	4	OTHER PERENNIAL FORBS	PPFF	4
	5	OTHER SHRUBS	SSSS	5
PRODUC	431	POTENTIAL PRODUCTION (LBS./AC. DRY WT): FAVORABLE YEARS		1200
	2	NORMAL YEARS		950
	3	UNFAVORABLE YEARS		700

FOOTNOTES

SYM.	
1	RANGE SITE IS ROLLING LOAM.

| | | |

Tentative - subject to revision

REDCREEK SERIES

The Redcreek series consists of shallow, well drained soils that formed in sandy material weathered from underlying calcareous sandstone. Redcreek soils are on mountain sideslopes and ridges and have slopes of 5 to 30 percent. Mean annual precipitation is about 16 inches and the mean annual air temperature is about 44 degrees F.

Redcreek soils are similar to the Rentsac soils. Rentsac soils are skeletal and are on fractured sandstone, while Redcreek soils are non-skeletal and are on massive sandstone.

Typical pedon of Redcreek sandy loam, 5 to 30 percent slopes, about 900 feet N of SW$\frac{1}{4}$ corner, Section 18, Township 3 South, Range 96 West.

A11 0-2"--Pale brown (10YR 6/3) sandy loam, brown (10YR 4/3) moist; weak fine granular structure; soft, very friable, nonplastic, nonsticky; calcareous, mildly alkaline, (pH 7.8); clear smooth boundary.

A12 2-6"--Pale brown (10YR 6/3) sandy loam, brown (10YR 4/3) moist; weak fine subangular blocky structure parting to weak fine granules; soft, very friable, nonplastic, nonsticky; strongly calcareous, moderately alkaline (pH 8.2); clear wavy boundary.

C 6-11"--Very pale brown (10YR 7/3) fine channery sandy loam, pale brown (10YR 6/3) moist; massive; slightly hard, very friable, nonplastic, nonsticky; strongly calcareous moderately alkaline (pH 8.2); abrupt smooth boundary.

Cr 11-19"--Very pale brown (10YR 7/4) sandy loam, light yellowish brown (10YR 6/4) moist; massive; slightly hard, very friable; strongly calcareous, moderately alkaline (pH 8.2).

R 19"+--Hard sandstone.

Thickness of the solum ranges from 10 to 20 inches. Coarse fragments make up 5 to 20 percent of the solum. Reaction is mildly alkaline to moderately alkaline.

to moderately alkaline.

make up 2 to 50 percent of the soils. Reaction is mildly alkaline

Thickness of the solum ranges from 10 to 50 inches. Coarse frag-

R 10Yr 8/4--Hard sandstone.

strongly calcareous; moderately alkaline (pH 8.5).

brown (10YR 5/4) moist; massive; slightly hard, very friable;

11-19"--Very pale brown (10YR 7/4) sandy loam, light yellowish

(pH 8.5); sprinkr smooth boundary.

C 19"--Very pale brown (10YR 8/3) sandy loam, pale brown (10YR 6/3) moist; massive; slightly hard, very friable;

nonplastic; noncalcareous; strongly calcareous moderately alkaline

brown (10YR 6/3) moist; massive; slightly hard, very friable;

C 8-11"--Very pale brown (10YR 7/3) fine channery sandy loam, pale

calcareous; moderately alkaline (pH 8.5); clear wavy boundary.

gravelly; soft; very friable; nonplastic; noncalcareous; strongly

weak fine subangular blocky structure parting to weak fine

2IA 5-8"--Pale brown (10YR 6/3) sandy loam, brown (10YR 4/3) moist;

boundary.

noncalcareous; calcareous; mildly alkaline; (pH 7.8); clear smooth

weak fine granular structure; soft; very friable; nonplastic;

11A 0-5"--Pale brown (10YR 6/3) sandy loam, brown (10YR 4/3) moist;

66--Redcreek-Rentsac complex, 5 to 30 percent slopes.--These moderately sloping to steep soils are formed in residuum on foothill slopes and ridges at elevations of 6,000 to 7,600 feet. Average annual precipitation is about 16 inches, and the mean annual air temperature is about 44 degrees F. The Redcreek soil makes up about 60 percent of the mapping unit, and the Rentsac soil makes up about 30 percent. Redcreek soil is similar to the Rentsac soil but differs in being non-skeletal. About 10 percent of the unit is Rock Outcrop, Piceance fine sandy loam, and Yamac loam.

The Redcreek soil is a shallow, well drained soil that formed in residuum from massive sandstone that weathers rapidly.

Typically, the surface layer is a pale brown sandy loam about 6 inches thick. The substratum is a fine channery sandy loam about 12 inches thick, and rests on massive sandstone.

Permeability is moderately rapid. The effective rooting depth is 10 to 20 inches, and the available water capacity is low.

Surface runoff is slow, and the erosion hazard is slight.

The Rentsac soil is a shallow, well drained soil that formed in residuum from sandstone which is highly fractured and hard.

Typically the surface layer is a pale brown very channery sandy loam about 4 inches thick. The underlying layer is a pale brown very channery sandy loam about 7 inches thick. The substratum is a pale brown very flaggy sandy loam about 7 inches thick and rests on hard fractured sandstone.

DS--Hagerstown-Frankfort complex, 2 to 25 percent slopes.--These moderately
and well drained soils are formed in residuum on Cambrian shales and
limestone of Ordovician age. Average annual precipi-
tation is about 38 inches, and the mean annual air temperature is about
44 degrees F. The Hagerstown soil makes up about 50 percent of the mapping
unit, and the Frankfort soil makes up about 30 percent. Included with it
in mapping are small areas of Opequon soils and rock outcrop, Pleasance fine sandy loam, and
Kedron loam.

The Hagerstown soil is a shallow, well drained soil that formed in
limestone residuum. Typically, the surface layer is a dark brown very friable
loam about 4 inches thick. The subsoil is a dark yellowish brown friable
clay loam about 7 inches thick. The substratum is a dark
yellowish brown very friable loam about 7 inches thick and rests on hard
fractured sandstone.

Permeability is rapid. Effective rooting depth is 10 to 20 inches, and available water capacity is low. Surface runoff is slow and erosion hazard slight.

These soils are used for limited livestock grazing and wildlife habitat.

These soils have limited use for community development, sanitary facilities, and recreation areas due to steep slopes and depth to bedrock.

The thin layers of soils makes this soil unsuited for use as top-soil and source material for roadfill.

(Capability Unit, VIe; Woodland Site; Pinyon-Juniper, Range Site; Stony Foothills.)

SOILS-5
5. MAY 1972
* CODE SOILS-12

(1) Tentative = subject to revision

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL SURVEY INTERPRETATIONS

KEYING ONLY: CORD NO. | CONTROL WORD | NO. — MLRA 001 — STATE 011

MLRA(S) 78 | KIND OF UNIT SERIES | UNIT NAME 66 RIO BLANCO,CO (REDCREEK)
STATE COLORADO | RECORD NO. | AUTHOR(S) DRA | DATE 2-75 | REVISED | UNIT MODIFIER

CLASSIFICATION AND BRIEF SOIL DESCRIPTION

021
031 THE REDCREEK SERIES CONSISTS OF SHALLOW WELL DRAINED SOILS FORMED IN CALCAREOUS MATERIAL WEATHERED FROM SANDSTONE.
2 TYPICALLY THE SURFACE IS A SANDY LOAM ABOUT 6 INCHES THICK. THE UNDERLYING LAYER IS A FINE GRAVELLY SANDY LOAM ABOUT 13
3 INCHES THICK AND IS UNDERLAIN BY SANDSTONE. NATURAL VEGETATION IS PINYON-JUNIPER WITH GRASS UNDERSTORY. MEAN ANNUAL
4 PRECIPITATION IS ABOUT 16 INCHES. MEAN ANNUAL SOIL TEMPERATURE IS ABOUT 44 DEGREES F. FROST FREE SEASON IS 80 TO 125
5 DAYS. ELEVATION RANGES FROM 6000 TO 7600 FEET. SLOPES ARE 5 TO 30 PERCENT.

FOOTNOTE — ESTIMATED SOIL PROPERTIES

	DEPTH (IN.)	USDA TEXTURE	UNIFIED	AASHO	FRACT. >3 IN. (PCT)	PERCENT OF MATERIAL LESS THAN 3 IN. PASSING SIEVE: 4	10	40	200	LIQUID LIMIT	PLASTICITY INDEX
PROP 041	0-6	SL, FSL	SM	A-2, A-4	0	90-100	85-95	50-80	25-50	20-30	NP-10
2	6-11	SL, FSL, CN-SL, CN-FSL	SM	A-2, A-4	0	70-90	65-85	40-70	20-45	20-30	NP-10
3	11-19	WB									
4	19	UWB									
5											
6											

	DEPTH (IN.)	PERMEABILITY (IN/HR)	AVAILABLE WATER CAPACITY (IN/IN)	SOIL REACTION (pH)	SALINITY (MMHOS/CM)	SHRINK-SWELL POTENTIAL	CORROSIVITY: STEEL	CONCRETE	EROSION FACTORS: K	T	WIND EROD. GROUP
PROP 051	SAME DEPTH AS ABOVE	2.0-6.0	0.11-0.15	7.4-8.4	—	LOW	HIGH	LOW			
2		2.0-6.0	0.11-0.15	7.4-8.4	—	LOW	HIGH	LOW			
3											
4											
5											
6											

	FLOODING: FREQUENCY	DURATION	MONTHS	HIGH WATER TABLE: DEPTH (FT)	KIND	MONTHS	CEMENTED PAN: DEPTH (IN)	HARDNESS	BEDROCK: DEPTH (IN)	HARDNESS	SUBSIDENCE: INITIAL (IN)	TOTAL (IN)	HYD GRP	POTENTIAL FROST ACTION
PROP 061	NONE			>6			—		20-40	HARD	—		D	LOW

	FOOTNOTES	SANITARY FACILITIES	KEYING ONLY		FOOTNOTES	SOURCE MATERIAL
SEPTIC 071	SEPTIC TANK ABSORPTION FIELDS	SEVERE-DEPTH TO ROCK	FILL	191	ROADFILL	POOR-THIN LAYER, AREA RECLAIM
LAGOON 081	SEWAGE LAGOONS	SEVERE-DEPTH TO ROCK	SAND	201	SAND	UNSUITED
TRENCH 091	SANITARY LANDFILL (TRENCH)	SEVERE-DEPTH TO ROCK	GRAVEL	211	GRAVEL	UNSUITED
SANARE 101	SANITARY LANDFILL (AREA)	SEVERE-SEEPAGE	SOIL	221	TOPSOIL	POOR-SMALL STONES, AREA RECLAIM
COVER 111	DAILY COVER FOR LANDFILL	POOR-THIN LAYER, AREA RECLAIM				

	FOOTNOTES	COMMUNITY DEVELOPMENT			FOOTNOTES	WATER MANAGEMENT
EXCAV 121	SHALLOW EXCAVATIONS	SEVERE-DEPTH TO ROCK	PONDRS	231	POND RESERVOIR AREA	DEPTH TO ROCK, SEEPAGE, SLOPE
DWEL 131	DWELLINGS WITHOUT BASEMENTS	SEVERE-DEPTH TO ROCK	DIKES	241	EMBANKMENTS DIKES AND LEVEES	THIN LAYER, SEEPAGE
DWEL 141	DWELLINGS WITH BASEMENTS	SEVERE-DEPTH TO ROCK	PONDAQ	251	EXCAVATED PONDS AQUIFER FED	NO WATER
BLDGS 151	SMALL COMMERCIAL BUILDINGS	SEVERE-DEPTH TO ROCK	DRAIN	261	DRAINAGE	
ROADS 161	LOCAL ROADS AND STREETS	5-15%: SEVERE-DEPTH TO ROCK 15%+: SEVERE-DEPTH TO ROCK, SLOPE	IRRIG	271	IRRIGATION	
			TERRAC	281	TERRACES AND DIVERSIONS	DEPTH TO ROCK, SLOPE
	FOOTNOTES	REGIONAL INTERPRETATIONS	WATERW	291	GRASSED WATERWAYS	ROOTING DEPTH, DROUGHTY
ON 171						
REGION 181						

SOIL SURVEY INTERPRETATIONS

Tentative - subject to revision

KEYING ONLY — RECORD NO. / CONTROL WORD / NO.

UNIT NAME: REDCREEK
UNIT MODIFIER:

(2)

RECREATION

KEYING ONLY				FOOTNOTE
CAMPS	301	CAMP AREAS		3-8%: SLIGHT 8-15%: MODERATE - SLOPE 15%+ : SEVERE - SLOPE
PICNIC	311	PICNIC AREAS		5-8%: SLIGHT 8-15%: MODERATE - SLOPE 15%+ : SEVERE - SLOPE
PLAYGD	321	PLAYGROUNDS		SEVERE - DEPTH TO ROCK
PATHS	331	PATHS AND TRAILS		5-15%: SLIGHT 15-25%: MODERATE - SLOPE 25%+ : SEVERE - SLOPE

CAPABILITY AND PREDICTED YIELDS - CROPS AND PASTURE (HIGH LEVEL MANAGEMENT)

FOOTNOTE

CROPHD 451	CROPS 341	CLASS-DETERMINING PHASE	CAPABILITY NIRR	CAPABILITY IRR.															
	1	ALL	6E																

WOODLAND SUITABILITY

FOOTNOTE

WOODS 361	CLASS-DETERMINING PHASE	ORD SYM	MANAGEMENT PROBLEMS: EROSION HAZARD	EQUIP. LIMIT	SEEDLING MORT'Y.	WINDTH. HAZARD	PLANT COMPET.	POTENTIAL PRODUCTIVITY: IMPORTANT TREES	SITE INDEX	TREES TO PLANT
1	ALL							PINYON PINE ROCKY MOUNTAIN JUNIPER UTAH JUNIPER	95	

WIND BREAKS

FOOTNOTE

WINDBK 381	CLASS-DETERMINING PHASE	SPECIES	HT	SPECIES	HT	SPECIES	HT	SPECIES	HT
1		NONE							

WILDLIFE HABITAT SUITABILITY

FOOTNOTE

WILDLF 391	CLASS-DETERMINING PHASE	POTENTIAL FOR HABITAT ELEMENTS: GRAIN & SEED	GRASS & LEGUME	WILD HERB.	HARDWD TREES	CONIFER PLANTS	SHRUBS	WETLAND PLANTS	SHALLOW WATER	POTENTIAL AS HABITAT FOR: OPENLAND WILDLIFE	WOODLAND WILDLIFE	WETLAND WILDLIFE	RANGELAND WILDLIFE
1	ALL	POOR	POOR	POOR	—	Good	GOOD	V. POOR	V. POOR	POOR	V. POOR	V. POOR	FAIR

POTENTIAL NATIVE PLANT COMMUNITY (RANGELAND OR FOREST UNDERSTORY VEGETATION)

FOOTNOTE

PHASE 401	PLANT 411	COMMON PLANT NAME	PLANT SYMBOL (NLSPN)	PERCENTAGE COMPOSITION (DRY WEIGHT) BY CLASS DETERMINING PHASE: ALL
1	1	BEARDLESS WHEATGRASS	AGIN	10
	2	INDIAN RICEGRASS	ORHY	10
	3	SEDGE	CAREX	5
	4	NEVADA BLUE GRASS	PONE3	3
	5	PRAIRIE JUNEGRASS	KOCR	?
	6	OTHER PERENNIAL GRASSES	PPEG	4
	7	SPINY GOLDENWEED	HASP2	?
	8	LOW PHLOX	PHLOX	?
	9	SCARLET GLOBEMALLOW	SPCO	2
	421	OTHER PERENNIAL FORBS	PPEF	2
	2	SERVICEBERRY	AMLE2	20
	3	TRUE MOUNTAIN MAHOGANY	CEMO2	20
	4	BIG SAGEBRUSH	ARTR2	10
	5	OTHER SHRUBS	SSSS	5
	6			
PRODUC 431		POTENTIAL PRODUCTION (LBS./AC. DRY WT):		
1		FAVORABLE YEARS		350
2		NORMAL YEARS		250
3		UNFAVORABLE YEARS		150

FOOTNOTES

NOTES 441	SYM.	
1	1	R-J WOODLAND PHASE ONLY

REDCREEK

Tentative - subject to revision

RENTSAC SERIES

The Rentsac series consists of shallow, well drained soils formed in residuum from sandstone. Rentsac soils are on foothills (upland entrenched terrace) and have slopes which are 5 to 50 percent. Mean annual precipitation is 16 inches and the mean annual air temperature is about 44 degrees F.

Rentsac soils are similar to the Redcreek soils. Redcreek soil is non-skeletal while Rentsac is skeletal.

Typical pedon of Rentsac very channery sandy loam, 5 to 50 percent slopes, under chained pinyon-juniper area, NE$\frac{1}{4}$ SW$\frac{1}{4}$, Section 27, Township 1 North, Range 98 West.

I North, Range 3E West.

A1 0-4"--Pale brown (10YR 6/3) very channery sandy loam, dark grayish brown (10YR 4/2) moist; weak fine granular structure; soft, very friable, nonsticky and slightly plastic; 40 percent sandstone channery; calcareous, moderately alkaline (pH 8.4); clear boundary.

Ac 4-11"--Pale brown (10YR 6/3) very channery sandy loam, dark grayish brown (10YR 4/2) moist; weak medium granular structure; soft, very friable, nonsticky and nonplastic; 50 percent channery and 10 percent flags; calcareous, moderately alkaline (pH 8.4); clear smooth boundary.

Cr 11-18"--Pale brown (10YR 6/3) very flaggy sandy loam, dark grayish brown (10YR 4/2) moist; massive; soft, very friable, nonsticky and nonplastic; 65 percent flags and 15 percent sandstone; channery; calcareous, moderately alkaline (pH 8.4); clear smooth boundary.

R 18"--Hard fractured sandstone.

R 18"--Hard translated sandstone.

smooth pondweed.

channel; calcareous, moderately alkaline (pH 8.4); clear

and nonplastic; 65 percent clay and 35 percent sand;

brown (10YR 4/3) moist; massive; soft, very friable, nonsticky

CT 11-18"--Late brown (10YR 6/3) very clayey sand, dark grayish

clear smooth pondweed.

and 10 percent clay; calcareous, moderately alkaline (pH 8.4);

soft, very friable, nonsticky and nonplastic; 20 percent channel

grayish brown (10YR 4/3) moist; weak medium granular structure;

AC 4-11"--Late brown (10YR 6/3) very channely sandy loam, dark

clear boundary.

sandstone channel; calcareous, moderately alkaline (pH 8.4);

soft, very friable, nonsticky and slightly plastic; 40 percent

grayish brown (10YR 4/3) moist; weak fine granular structure;

AI 0-4"--Late brown (10YR 6/3) very channely sandy loam, dark

The A horizon ranges from very channery or flaggy sandy loam to very channery or flaggy loam. Coarse fragment ranges from 25 to 40 percent total, most of which is <3". The depth to bedrock ranges 10 to 20 inches. The underside and along cracks of the coarse fragments in Ac and Cr have lime coatings. The 10 to 20 inch section has a clay range of 10 to 25 percent.

The Ac has 60 percent coarse fragment with 10 percent >3".

The Cr has 80 percent total coarse fragment with 15 percent channery fragments and 65 percent flags.

Reaction is moderately alkaline throughout.

63--Rentsac very channery fine sandy loam, 5 to 50 percent slopes.--
This is a shallow, well drained soil on foothills and ridge tops at elevations of 6,000 to 7,600 feet. It formed in residuum on sandstone that is usually horizontally fractured. The average annual precipitation is about 16 inches, average annual air temperature is about 44 degrees F., and frost-free period is about 80 to 105 days.

Typically the surface layer is a pale brown very channery sandy loam about 4 inches thick. The underlying layer is a pale brown very channery sandy loam about 7 inches thick. The substrata is a pale brown very flaggy sandy loam about 7 inches thick and overlies fractured hard sandstone.

The Rentsac soil comprises about 70 percent of the map unit. The remaining percentage is comprised of inclusions of Rock outcrop, Redcreek soils, Yamac soils in narrow areas too small to delineate, Piceance soils, and soils similar to Rentsac that are less than 10 inches to bedrock. A few small areas have slopes steeper than 50 percent.

Permeability is rapid. Effective rooting depth is less than 20 inches. Organic matter content in the surface layer is medium. Availability water capacity is low. Surface runoff is medium and erosion hazard is slight to moderate.

E3--Fractured very thinly bedded rock, 2 to 20 percent slopes.--

This is a shallow, well drained soil on foothills and ridges that have 2,000 to 3,000 feet. It formed in residuum on sandstone that is nearly horizontally fractured. The average annual precipitation is about 20 inches, average annual temperature is about 44 degrees F., and frost-free period is about 90 to 150 days.

Typically the surface layer is a dark brown very channery sandy loam about 4 inches thick. The underlying layer is a dark brown channery sandy loam about 7 inches thick. The subsoil is a dark yellowish brown and strong brown very channery sandy loam about 7 inches thick and overlies fractured hard sandstone.

The Hazelton soil commonly is about 10 percent of the map unit. The remaining percentage is comprised of inclusions of rock outcrop, Rockrock soils, Ferric soils in narrow areas too small to delineate, Ferrence soils and soils similar to Hazleton that are less than 10 inches to bedrock. A few small areas near steep slopes steeper than 30 percent.

Permeability is rapid. Effective rooting depth is less than 20 inches. Organic matter content in the surface layer is medium. Available water capacity is low. Surface runoff is medium and erosion hazard is slight to moderate.

This soil is used for livestock grazing and recreation.

This soil has a severe limitation on sanitary facility uses due mainly to the depth to rock and slope. (This includes sewage lagoons, septic tank absorption fields, and landfills.) Local roads and streets have a severe limitation for the same reasons. As source materials, such as roadfill and topsoil, Rentsac is poor due to thin layer, small stones, and problems of area reclaim.

(Capability Unit; VIIs: Range Site; Grazable Woodland, Stony Foothills.)

X63 - Rentsac-Piceance complex, 2 to 30 percent slopes.--These gently sloping to moderately steep soils are on sloping uplands, low mountain slopes and ridges at elevations of 6,200 to 7,200 feet. The average annual precipitation is about 16 inches, and the mean annual air temperature is about 43 degrees F. The Rentsac soil makes up about 50 percent of the mapping unit, and Piceance soil about 40 percent. About 10 percent of the unit is Redcreek sandy loam, Yamac loam, and Forelle loam soils as well as mapping unit RT.

The Rentsac soil is a shallow, well drained soil. It formed in residuum and occupies the ridge crests and steeper mountain slopes.

Typically, the surface layer is a pale brown very channery sandy loam about 4 inches thick. The underlying layer is a pale brown very channery sandy loam about 7 inches thick. The substratum is a pale brown very flaggy sandy loam to 18 inches and overlies highly fractured sandstone.

Permeability is rapid. The effective rooting depth is 10 to 20 inches, and the available water capacity is low. Surface runoff is slow, and erosion hazard is slight.

The Piceance soil is moderately deep and well drained. It formed in aeolian and residuum and occurs in low pockets and swale-like positions generally on a north-northeast aspect.

Generally on a north-northeast aspect.

In scolia and resigunum and occurs in low bockets and eave-like positions

The Fircomic soil is moderately deep and well drained. It formed

and erosion pakera is slight.

Permeability is rapid. The effective rooting depth is 40 to 60

inches, and the available water capacity is low. Surface runoff is slow,

prom very tiagga sough loam to 18 inches and overlies highly fractured

clamnery sough loam apout 7 inches thick. The substratum is a berle

loam apout 4 inches thick. The underlying layer is a berle prom very

gravelly, the surface layer is a berle prom very clamnery sough

resigunum and occupies the ridge crests and steeper montane slopes.

The Hemlasec soil is a shallow, well drained soil. It formed in

soils as very as mapping unit 7R.

Hemlasec-Fircomic complex, 5 to 30 percent slopes.--These gently

sloping to moderately steep soils are on sloping ridgetops, low mountain

slopes and ridges at elevations of 6,500 to 7,500 feet. The average

annual precipitation is apout 18 inches, and the mean annual air temper-

ature is apout 43 degrees F. The Hemlasec soil makes up apout 50 percent

of the mapping unit, and Fircomic soil apout 40 percent. Apout 10 per-

cent of the unit is Redcreek sough loam, James loam, and Forella loam

soils as very as mapping unit 7R.

Typically, the surface layer is a brown fine sandy loam about 10 inches thick. The subsoil is a light yellowish brown loam about 12 inches thick. The substratum is a very pale brown extremely channery sandy loam about 15 inches thick and overlies hard sandstone.

Permeability is moderate to moderately rapid. The effective rooting depth is 20 to 40 inches, and the available water capacity is moderate. Surface runoff is slow to medium on the steeper slopes, and the erosion hazard is slight to moderate.

This soil is used for livestock grazing, recreation, and wildlife habitat.

These soils have moderate to severe limitations for community development and sanitary facilities due to depth to bedrock. Recreational areas have slight to moderate limitations due to surface stoniness. These soils are poor sources for road fill material and topsoil due to depth to bedrock and borrow area reclamation.

(Capability Unit, VIe; Range Site: Rolling Loam.)

Generally, the entire layer is a prime time enough loam about 10 inches thick. The subsoil is a light heavy-silt loam about 15 inches thick. The substratum is a very hard extremely cherty enough loam about 15 inches thick and overlies hard sandstone.

Permeability is moderate to moderately rapid. The effective rooting depth is 20 to 40 inches, and the available water capacity is moderate. Surface runoff is slow to medium on the steeper slopes, and the erosion hazard is slight to moderate.

This soil is used for livestock grazing, recreation, and wildlife habitat.

These soils have moderate to severe limitations for community development and sanitary facilities due to depth to bedrock. Recreational development and sanitary facilities due to depth to bedrock and poorly suited for local fill material and roadfill due to these soils are poor sources for road fill material and roadfill due to severe erosion hazard in slight to moderate limitations due to entrance accordance.

(Cherryfield Unit, VIe; Kenyon Site; Rolling Loam.)

SOILS-5
MAY 1977
CODE SOILS-12

(1) Tentative - subject to revision

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL SURVEY INTERPRETATIONS

RIO BLANCO CO., COLO

KEYING ONLY: CORD NO. | CONTROL: WORD MLRA 001, STATE 011

MLRA(S) 48 | KIND OF UNIT SERIES | UNIT NAME (RENTSAC) 63
STATE COLORADO | RECORD NO. | AUTHOR(S) WSH | DATE 5-75 | REVISED | UNIT MODIFIER

CLASSIFICATION AND BRIEF SOIL DESCRIPTION

CLASS 021

031: THE 63 SERIES CONSIST OF SHALLOW, WELL DRAINED, SOILS FORMED IN RESIDUUM FROM SANDSTONE ON FOOTHILLS. TYPICALLY THE SURFACE LAYER IS A VERY CHANNERY SANDY LOAM ABOUT 4 INCHES THICK. THE SUBSOIL IS A VERY CHANNERY SANDY LOAM ABOUT 7 INCHES THICK. THE UNDERLYING LAYER IS A VERY FLAGGY SANDY LOAM ABOUT 7 INCHES THICK AND OVERLIES FRACTURED HARD SANDSTONE. NATURAL VEGETATION IS MOSTLY PINYON AND JUNIPER TREES WITH SOME SHRUB AND GRASS UNDERSTORY. AVERAGE ANNUAL PRECIPITATION IS ABOUT 16 INCHES AND THE FROST FREE SEASON IS ABOUT 80 DAYS. SLOPES ARE 5 TO 50 PERCENT.

ESTIMATED SOIL PROPERTIES

	FOOTNOTE	DEPTH (IN.)	USDA TEXTURE	UNIFIED	AASHO	FRACT. >3 IN. (PCT)	PERCENT OF MATERIAL LESS THAN 3 IN. PASSING SIEVE: 4	10	40	200	LIQUID LIMIT	PLASTICITY INDEX
PROP 041	1	0-4	CNV-SL, CNV-L, FLV-SL	SM, SC	A-1, A-2, A-4	10-30	60-80	50-60	30-60	15-40	20-30	NP-10
	2	4-11	CNV-SL, CNV-L, FLV-SL	SM, SC, GM, GM-GC	A-1, A-2, A-4	10-30	40-60	30-50	20-50	10-35	20-30	NP-10
	3	11-18	FLV-SL	SM-SC, SM	A-1, A-2	75-85	80-95	75-85	45-60	20-35	15-25	NP-5
	4	18	UWB									
	5											
	6											

	DEPTH (IN.)	PERMEABILITY (IN/HR)	AVAILABLE WATER CAPACITY (IN/IN)	SOIL REACTION (pH)	SALINITY (MMHOS/CM)	SHRINK-SWELL POTENTIAL	CORROSIVITY: STEEL	CORROSIVITY: CONCRETE	EROSION FACTORS: K	EROSION FACTORS: T	WIND EROD. GROUP
PROP 051		2.0-6.0	0.07-0.09	7.9-8.4	—	LOW	HIGH	LOW	.10	1	8
2	SAME DEPTH AS ABOVE	2.0-6.0	0.07-0.09	7.9-8.4	—	LOW	HIGH	LOW	.10		
3		2.0-6.0	0.05-0.07	7.9-8.4	—	LOW	HIGH	LOW	.10		
4											
5											
6											

	FLOODING: FREQUENCY	DURATION	MONTHS	HIGH WATER TABLE: DEPTH (FT)	KIND	MONTHS	CEMENTED PAN: DEPTH (IN)	HARDNESS	BEDROCK: DEPTH (IN)	HARDNESS	SUBSIDENCE: INITIAL (IN)	TOTAL (IN)	HYD GRP	POTENTIAL FROST ACTION
PROP 061	NONE			>6			—		10-20	HARD	—		D	MODERATE

	FOOTNOTES	SANITARY FACILITIES
SEPTIC 071	SEPTIC TANK ABSORPTION FIELDS	5-15%: SEVERE - DEPTH TO ROCK 15+%: SEVERE - SLOPE, DEPTH TO ROCK
LAGOON 081	SEWAGE LAGOONS	5-15%: SEVERE - SMALL STONES, DEPTH TO ROCK, SEEPAGE 15+%: SEVERE - SLOPE, SMALL STONES, DEPTH TO ROCK, SEEPAGE
TRENCH 091	SANITARY LANDFILL (TRENCH)	5-25%: SEVERE - DEPTH TO ROCK, SEEPAGE 25+%: SEVERE - DEPTH TO ROCK, SEEPAGE, SLOPE
SANARE 101	SANITARY LANDFILL (AREA)	5-15%: SEVERE - SEEPAGE 15+%: SEVERE - SLOPE, SEEPAGE
COVER 111	DAILY COVER FOR LANDFILL	5-15%: POOR - SMALL STONES, THIN LAYER, AREA RECLAIM 15+%: POOR - SLOPE, SMALL STONES, THIN LAYER, AREA RECLAIM

	FOOTNOTES	COMMUNITY DEVELOPMENT
EXCAV 121	SHALLOW EXCAVATIONS	5-15%: SEVERE - DEPTH TO ROCK, SMALL STONES 15+%: SEVERE - SLOPE, DEPTH TO ROCK, SMALL STONES
DWEL 131	DWELLINGS WITHOUT BASEMENTS	5-15%: SEVERE - DEPTH TO ROCK 15+%: SEVERE - SLOPE, DEPTH TO ROCK
DWEL 141	DWELLINGS WITH BASEMENTS	5-15%: SEVERE - DEPTH TO ROCK 15+%: SEVERE - SLOPE, DEPTH TO ROCK
BLDGS 151	SMALL COMMERCIAL BUILDINGS	5-8%: SEVERE - DEPTH TO ROCK 8+%: SEVERE - SLOPE, DEPTH TO ROCK
ROADS 161	LOCAL ROADS AND STREETS	5-15%: SEVERE - DEPTH TO ROCK 15+%: SEVERE - SLOPE, DEPTH TO ROCK

	FOOTNOTES	REGIONAL INTERPRETATIONS
ION 171		
REGION 181		

KEYING ONLY	FOOTNOTES	SOURCE MATERIAL
FILL 191	ROADFILL	5-25%: POOR - THIN LAYER, AREA RECLAIM 25+%: POOR - SLOPE, THIN LAYER, AREA RECLAIM
SAND 201	SAND	UNSUITED
GRAVEL 211	GRAVEL	UNSUITED
SOIL 221	TOPSOIL	5-15%: POOR - SMALL STONES, THIN LAYER, AREA RECLAIM 15+%: POOR - SLOPE, SMALL STONES, THIN LAYER, AREA RECLAIM

	FOOTNOTES	WATER MANAGEMENT
PONDRS 231	POND RESERVOIR AREA	DEPTH TO ROCK, SLOPE
DIKES 241	EMBANKMENTS DIKES AND LEVEES	THIN LAYER
PONDAQ 251	EXCAVATED PONDS AQUIFER FED	NO WATER
DRAIN 261	DRAINAGE	
IRRIG 271	IRRIGATION	
TERRAC 281	TERRACES AND DIVERSIONS	DEPTH TO ROCK, SLOPE
WATERW 291	GRASSED WATERWAYS	ROOTING DEPTH, SLOPE

SOIL SURVEY INTERPRETATIONS

Tentative - subject to revision

KEYING ONLY — RECORD NO. | CONTROL WORD | NO.

UNIT NAME: (RENTSAC) 63
UNIT MODIFIER:

(2)

RECREATION

KEYING ONLY		FOOTNOTE		KEYING ONLY		FOOTNOTE
CAMPS	301	5-8%: MODERATE - SMALL STONES 8-15%: MODERATE - SLOPE, SMALL STONES 15+%: SEVERE - SLOPE	CAMP AREAS	PLAYGD	321	5-6%: SEVERE - SMALL STONES 6+%: SEVERE - SLOPE, SMALL STONES	PLAYGROUNDS
PICNIC	311	5-8%: MODERATE - SMALL STONES 8-15%: MODERATE - SLOPE, SMALL STONES 15+%: SEVERE - SLOPE	PICNIC AREAS	PATHS	331	5-15%: MODERATE - SMALL STONES 15-25%: MODERATE - SLOPE, SMALL STONES 25+%: SEVERE - SLOPE	PATHS AND TRAILS

CAPABILITY AND PREDICTED YIELDS - CROPS AND PASTURE (HIGH LEVEL MANAGEMENT)

KEYING ONLY		CLASS-DETERMINING PHASE	CAPABILITY NIRR	CAPABILITY IRR.														
CROPHD	451																	
CROPS	341	ALL	7E															
	351																	

WOODLAND SUITABILITY

KEYING ONLY		CLASS-DETERMINING PHASE	ORD SYM	MANAGEMENT PROBLEMS: EROSION HAZARD	EQUIP. LIMIT	SEEDLING MORT'Y.	WINDTH. HAZARD	PLANT COMPET.	POTENTIAL PRODUCTIVITY: IMPORTANT TREES	SITE INDEX	TREES TO PLANT
WOODS	361	ALL							PINYON PINE ROCKY MOUNTAIN JUNIPER UTAH JUNIPER	60	
	371										

WIND BREAKS

KEYING ONLY		CLASS-DETERMINING PHASE	SPECIES	HT	SPECIES	HT	SPECIES	HT	SPECIES	HT
WINDBK	381		NONE							

WILDLIFE HABITAT SUITABILITY

KEYING ONLY		CLASS-DETERMINING PHASE	POTENTIAL FOR HABITAT ELEMENTS: GRAIN & SEED	GRASS & LEGUME	WILD HERB.	HARDWD TREES	CONIFER PLANTS	SHRUBS	WETLAND PLANTS	SHALLOW WATER	POTENTIAL AS HABITAT FOR: OPENLAND WILDLIFE	WOODLAND WILDLIFE	WETLAND WILDLIFE	RANGELAND WILDLIFE
WILDLF	391	ALL	V. POOR	V. POOR	POOR	—	GOOD	FAIR	V. POOR	V. POOR	V. POOR	V. POOR	V. POOR	POOR

POTENTIAL NATIVE PLANT COMMUNITY (RANGELAND OR FOREST UNDERSTORY VEGETATION)

KEYING ONLY		COMMON PLANT NAME	PLANT SYMBOL (NLSPN)	PERCENTAGE COMPOSITION (DRY WEIGHT) BY CLASS DETERMINING PHASE: WOODLAND	STONY FOOTHILL SITE
PHASE	401				
PLANT	411	PINYON 1/	PIED	15	—
	2	JUNIPER 1/	JUOS	20	—
	3	BIG SAGEBRUSH	ARTR2	5	10
	4	INDIAN RICEGRASS	ORHY	30	10
	5	NEEDLE AND THREAD	STCO4	5	5
	6	BEARDLESS WHEATGRASS	AGIN	5	5
	7	MOUNTAIN MAHOGANY	CEMO2	2	2
	8	BITTERBRUSH	PUTR2	2	2
	9	ELK SEDGE	CAGA2	2	—
	421	STEMLESS GOLDENWEED	HAAC	2	2
	2	PHLOX	PHLOX	2	5
	3	OTHER PERENNIAL GRASSES	PPGG	5	4
	4	OTHER PERENNIAL FORBS	PPFF	5	10
	5	JUNE GRASS	KOCR	—	5
	6	OTHER SHRUBS	SSSS		10
PRODUC	431	POTENTIAL PRODUCTION (LBS./AC. DRY WT): FAVORABLE YEARS		500	1000
	2	NORMAL YEARS		350	750
	3	UNFAVORABLE YEARS		200	500

FOOTNOTES

KEYING ONLY		SYM.	
NOTES	441	1	NOT USUALLY UTILIZED BY CATTLE OR SHEEP

| | | |

Rock outcrop-Torriorthents, 12 to 90 percent slopes (RT).--This mapping unit occurs mainly on southerly aspects in the Piceance Basin on strongly sloping to extremely steep terrace breaks of the many drainageways of this area. Rock outcrop occurs as horizontal sandstone cliffs or dike-like outcrops and as platy siltstone outcrops in 50 to 65 percent of the mapping unit. The remainder of the mapping unit is comprised of Torriorthents, most of which are very shallow and shallow, and a small percentage of moderately deep and deep Torriorthents in the colluvial and alluvial material.

The vegetation is characteristically very sparse - few scattered pinyons, junipers, and shrubs.

These soils have a severe limitation for sanitary facilities and local roads due to shallowness of the soil. These soils are a poor source of material for roadfill and topsoil due to thin layer, small stones and problems of area reclamation.

(Capability Unit, VIII.)

(Cabarrifty Unif, XIII.)

small afones and bropleme of sire rectamation.

a book source of material for Lightly and fobsoil dus to fild level.

and local tosks dus to spallowness of the soil. These soils are

These soils have a severe limitation for sanitary facilities

brinone, junipers, and sprube.

The vegetation is characteristically very sparse - ten scattered

and deep formations in the colluvial and alluvial material.

very small and shallow, and a small percentage of moderately deep

the mapping unit is comprised of formations, most of which are

crops in 20 to 25 percent of the mapping unit. The remainder of

associations cliffs of dike-like outcrops and as brafy cliffsone out-

many directions of fine size. Rock outcrop occurs as horizontal

basin on strongly sloping to extremely steep terrace breaks of the

mapping unit occurs mainly on soderately sabered in the Pricesure

Rock outcrop-Formations, 15 to 90 percent slopes (RT).--This

Tentative - subject to revision

YAMAC SERIES

The Yamac series consists of deep, well drained soils that formed in alluvium and aeolian materials. Yamac soils are on rolling uplands and ridges and have slopes of 5 to 15 percent. Mean annual precipitation is about 14 inches and mean annual air temperature is about 44 degrees F.

Yamac soils are similar to the Forelle and Piceance soils. Forelle soils have an argillic horizon not found in the Yamac. Piceance soils overlie bedrock at 20 to 40 inch depths.

Typical pedon of Yamac loam, 5 to 15 percent slopes, $SW\frac{1}{4}$ of Section 2, T2S, R99W.

AKRON SERIES

A1 0-4"--Brown (10YR 5/3) loam, dark grayish brown (10YR 4/2) moist; weak fine and medium platy parting to moderate very fine subangular blocky structure; slightly hard, friable, slightly sticky, slightly plastic; noncalcareous to slightly calcareous; moderately alkaline (pH 8.0); clear smooth boundary.

B2 4-12"--Brown (10YR 5/3) heavy loam, brown (10YR 4/3) moist; moderate fine and medium subangular blocky structure; slightly hard, friable, slightly sticky, slightly plastic; slightly calcareous; moderately alkaline (pH 8.2); clear wavy boundary.

B3ca 12-22"--Pale brown (10YR 6/3) loam, brown (10YR 4/3) moist; weak medium and coarse subangular blocky structure; slightly hard, friable, slightly sticky, slightly plastic; common, medium soft masses of calcium carbonate; moderately alkaline (pH 8.4); clear wavy boundary.

C1ca 22-48"--Very pale brown (10YR 7/3) loam, brown (10YR 5/3) moist; massive structure; slightly hard, friable, slightly sticky, slightly plastic; strongly calcareous with disseminated calcium carbonate; strongly alkaline (pH 8.6); gradual wavy boundary.

sandy loam; moderately alkaline (pH 8.2); strong very calcareous.

BC 14-24"--Brown (10YR 5/3) loam, pale brown (10YR 6/3) moist; massive; extremely hard, very firm, slightly sticky, slightly plastic; many fine roots; many very fine tubular pores; violently effervescent; moderately alkaline (pH 8.4); clear smooth boundary.

C1ca 24-48"--Very pale brown (10YR 7/3) loam, pale brown (10YR 6/3) moist; massive; extremely hard, very firm, slightly sticky, slightly plastic; few very fine roots; few very fine tubular pores; violently effervescent; moderately alkaline (pH 8.4); clear smooth boundary.

C2ca 48-60"--Very pale brown (10YR 7/3) loam, pale brown (10YR 6/3) moist; massive; extremely hard, very firm, slightly sticky, slightly plastic; few very fine roots; few very fine tubular pores; violently effervescent; moderately alkaline (pH 8.5); clear smooth boundary.

B3 14-25"--Brown (10YR 5/3) loam, pale brown (10YR 6/3) moist; weak very coarse prismatic parting to moderate very fine subangular blocky structure; slightly hard, very firm, slightly sticky, slightly plastic; few very fine roots; few very fine tubular pores; violently effervescent; moderately alkaline (pH 8.4); clear smooth boundary.

C1ca 25-48"--Very pale brown (10YR 7/3) loam, pale brown (10YR 6/3) moist; massive; extremely hard, very firm, slightly sticky, slightly plastic; few very fine roots; few very fine tubular pores; violently effervescent; moderately alkaline (pH 8.4); clear smooth boundary.

C2ca 48-60"--Very pale brown (10YR 7/3) loam, pale brown (10YR 6/3) moist; massive; extremely hard, very firm, slightly sticky, slightly plastic; few very fine roots; few very fine tubular pores; violently effervescent; moderately alkaline (pH 8.5); clear smooth boundary.

B3 14-25"--Brown (10YR 5/3) loam, pale brown (10YR 6/3) moist; weak very coarse prismatic parting to moderate very fine subangular blocky structure; slightly hard, very firm, slightly sticky, slightly plastic; few very fine roots; few very fine tubular pores; violently effervescent; moderately alkaline (pH 8.4); clear smooth boundary.

A1 0-14"--Brown (10YR 5/3) loam, dark grayish brown (10YR 4/2)

C2 48-60"--Pale brown (10YR 6/3) light loam, brown (10YR 5/3) moist; massive structure; soft, friable, slightly sticky, slightly plastic; strongly calcareous with disseminated calcium carbonate; moderately alkaline (pH 8.4).

Some pedons will be noncalcareous in the upper horizons. Most profiles will contain 0 to 20 percent of fine channery chips throughout.

Reaction ranges from moderately alkaline in the surface to strongly alkaline in the subsoil.

73--Yamac loam, 5 to 15 percent slopes.--This is a deep, well drained soil on rolling uplands and ridges at elevations of 6,300 to 7,100 feet. It formed in alluvial and aeolian materials. The average annual precipitation is about 14 inches, average annual air temperature is about 44 degrees F., and average frost-free period is about 80 to 105 days.

Typically the surface layer is dark grayish brown loam about 4 inches thick. The subsoil layer is a brown heavy loam about 18 inches thick. The underlying layer is brown loam about 26 inches thick, and overlies brown light loam that extends to 60 inches or more.

Included in this unit are small areas of Forelle and Piceance both having slopes of 5 to 15 percent. Also included in this unit are a few small natric spots 10 to 50 feet in diameter.

Permeability is moderate. Effective rooting depth is 60 inches or more. Available water capacity is high. Organic matter content in the surface layer is medium. Surface runoff is slow and erosion hazard is slight.

This soil is used for livestock grazing and wildlife habitat.

The Yamac soils are well suited for community development, sanitary facilities, and recreational areas. This soil is a good source for topsoil and is fair for road fill material.

(Capability Unit, IVe, VIe; Range site, Rolling Loam.)

(Cedarhills Unit, VA-47: Range site, Rolling Loam.)

soil and is left for long fill material.

Fertility rate, and restrictions. Site soil is a good source for top-

The loamy soils are well suited for community development, sanitary

This soil is used for livestock grazing and wildlife habitat.

salight.

entrance level is medium. Entrance control is slow and erosion hazard is

more. Available water capacity is high. Organic matter content in the

Permeability is moderate. Effective rooting depth is 60 inches or

small matric above 10 to 20 feet in diameter.

included in this unit are small areas of Foxville and Fragance soils

nearing slopes of 2 to 12 percent. Also included in this unit are a few

overflow from light loam that extends to 60 inches or more.

SOILS 8
MAY 1972
CODE SOILS-12

(1) Tentative - subject to revision

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SOIL SURVEY INTERPRETATIONS

KEYING ONLY: CORD NO. | CONTROL WORD / NO. — MLRA 001 — STATE 011

MLRA(S) 48 | KIND OF UNIT SERIES | UNIT NAME 73 (YAMAC) RIO BLANCO CO., COLO.
STATE COLORADO | RECORD NO. | AUTHOR(S) CJE | DATE 1975 | REVISED | UNIT MODIFIER

CLASSIFICATION AND BRIEF SOIL DESCRIPTION

021 / 031

THE YAMAC SERIES CONSISTS OF DEEP WELL DRAINED SOILS. THEY FORMED IN CALCAREOUS ALLUVIAL SEDIMENTS ON UPLANDS. SLOPES ARE 2 TO 15 PERCENT. ELEVATIONS RANGE FROM 6400 TO 7000 FEET. FROST FREE 80 TO 105 DAYS. TYPICALLY THE SURFACE LAYER IS A LOAM 4 TO 6 INCHES THICK. THE UNDERLYING LAYERS ARE LIGHT CLAY LOAMS AND LOAMS TO 60 INCHES OR MORE.

ESTIMATED SOIL PROPERTIES

	FOOTNOTE	DEPTH (IN.)	USDA TEXTURE	UNIFIED	AASHO	FRACT. >3 IN. (PCT)	PERCENT OF MATERIAL LESS THAN 3 IN. PASSING SIEVE 4	10	40	200	LIQUID LIMIT	PLASTICITY INDEX
PROP 041		0-4	FSL, L	ML	A-4	0	90-100	85-95	80-90	55-75	30-40	5-10
2		4-10	CL	ML-CL	A-4 A-6	0	90-100	85-95	80-90	55-75	30-40	10-15
3		10-36	L	ML	A-4	0	90-100	85-95	80-90	55-75	30-40	5-10
4		36-60	FSL	ML	A-4	0	90-100	85-95	80-90	55-75	30-40	5-10
5												
6												

	DEPTH (IN.)	PERMEABILITY (IN/HR)	AVAILABLE WATER CAPACITY (IN/IN)	SOIL REACTION (pH)	SALINITY (MMHOS/CM)	SHRINK-SWELL POTENTIAL	CORROSIVITY STEEL	CORROSIVITY CONCRETE	EROSION FACTORS K	EROSION FACTORS T	WIND EROD. GROUP
PROP 051	SAME DEPTH AS ABOVE	0.6 - 2.0	.16 - .18	7.9-8.4	—	LOW	HIGH				
2				7.9-8.4	—	LOW	HIGH				
3				7.9-8.4	—	LOW	HIGH				
4				7.9-8.4	—	LOW	HIGH				
5											
6											

	FLOODING FREQUENCY	FLOODING DURATION	FLOODING MONTHS	HIGH WATER TABLE DEPTH (FT)	HIGH WATER TABLE KIND	HIGH WATER TABLE MONTHS	CEMENTED PAN DEPTH (IN)	CEMENTED PAN HARDNESS	BEDROCK DEPTH (IN)	BEDROCK HARDNESS	SUBSIDENCE INITIAL (IN)	SUBSIDENCE TOTAL (IN)	HYD GRP	POTENTIAL FROST ACTION
PROP 061	NONE			>6.0	—	—	—	—	>60	—	—	—	B	MODERATE

SANITARY FACILITIES

	FOOTNOTES	
SEPTIC 071	SEPTIC TANK ABSORPTION FIELDS	0-8%: SLIGHT 8+%: MODERATE - SLOPE
LAGOON 081	SEWAGE LAGOONS	2-7%: MODERATE - SEEPAGE - SLOPE 7+%: SEVERE - SLOPE
TRENCH 091	SANITARY LANDFILL (TRENCH)	SLIGHT
SANARE 101	SANITARY LANDFILL (AREA)	0-8%: SLIGHT 8-15%: MODERATE - SLOPE
COVER 111	DAILY COVER FOR LANDFILL	0-8%: GOOD 8-15%: FAIR - SLOPE

COMMUNITY DEVELOPMENT

	FOOTNOTES	
EXCAV 121	SHALLOW EXCAVATIONS	0-8%: SLIGHT 8+%: MODERATE - SLOPE
DWEL 131	DWELLINGS WITHOUT BASEMENTS	0-8%: SLIGHT 8+%: MODERATE - SLOPE
DWEL 141	DWELLINGS WITH BASEMENTS	0-8%: SLIGHT 8+%: MODERATE - SLOPE
BLDGS 151	SMALL COMMERCIAL BUILDINGS	0-4%: SLIGHT 4-8%: MODERATE - SLOPE 8+%: SEVERE - SLOPE
ROADS 161	LOCAL ROADS AND STREETS	

REGIONAL INTERPRETATIONS

	FOOTNOTES	
[illegible] 171		
REGION 181		

SOURCE MATERIAL

KEYING ONLY	FOOTNOTES	
FILL 191	ROADFILL	FAIR -
SAND 201	SAND	UNSUITED
GRAVEL 211	GRAVEL	UNSUITED
SOIL 221	TOPSOIL	0-8%: GOOD 8-15%: FAIR - SLOPE

WATER MANAGEMENT

	FOOTNOTES	
PONDRS 231	POND RESERVOIR AREA	SEEPAGE - SLOPE
DIKES 241	EMBANKMENTS DIKES AND LEVEES	PIPING - LOW STRENGTH
PONDAQ 251	EXCAVATED PONDS AQUIFER FED	NO WATER
DRAIN 261	DRAINAGE	
IRRIG 271	IRRIGATION	
TERRAC 281	TERRACES AND DIVERSIONS	0-6%: FAVORABLE 6+%: SLOPE, ERODE
WATERW 291	GRASSED WATERWAYS	0-6%: FAVORABLE 6+%: SLOPE

SOIL SURVEY INTERPRETATIONS

(1) Soil qualities - subject to treatment

Tentative - subject to revision

UNIT NAME: YAMAC
UNIT MODIFIER:

(2)

RECREATION

KEYING ONLY RECORD NO.	CONTROL WORD	NO.		FOOTNOTE
	PS	301	CAMP AREAS	3-5%: SLIGHT 8-15%: MODERATE - SLOPE 15+%: SEVERE - SLOPE
	PICNIC	311	PICNIC AREAS	3-8%: SLIGHT 8-15%: MODERATE - SLOPE

KEYING ONLY			FOOTNOTE
PLAYGD	321	PLAYGROUNDS	3-6%: MODERATE - SLOPE 6+%: SEVERE - SLOPE
PATHS	331	PATHS AND TRAILS	3-15%: SLIGHT

CAPABILITY AND PREDICTED YIELDS - CROPS AND PASTURE (HIGH LEVEL MANAGEMENT)

FOOTNOTE

CROPHD 451

CROPS 341

CLASS-DETERMINING PHASE	CAPABILITY NIRR	CAPABILITY IRR.	NIRR	IRR.	NIRR	IRR.	NIRR	IRR.	NIRR	IRR.	NIRR	IRR.	NIRR	IRR.	NIRR	IRR.
3-5% 5-15%	4L 4E	3L 4E														

WOODLAND SUITABILITY

FOOTNOTE

WOODS 361

CLASS-DETERMINING PHASE	ORD SYM	MANAGEMENT PROBLEMS: EROSION HAZARD	EQUIP. LIMIT	SEEDLING MORT'Y.	WINDTH. HAZARD	PLANT COMPET.	POTENTIAL PRODUCTIVITY: IMPORTANT TREES	SITE INDEX	TREES TO PLANT
							NONE		

WIND BREAKS

FOOTNOTE

WINDBK 381

CLASS-DETERMINING PHASE	SPECIES	HT	SPECIES	HT	SPECIES	HT	SPECIES	HT

WILDLIFE HABITAT SUITABILITY

FOOTNOTE

WILDLF 391

CLASS-DETERMINING PHASE	POTENTIAL FOR HABITAT ELEMENTS: GRAIN & SEED	GRASS & LEGUME	WILD HERB.	HARDWD TREES	CONIFER PLANTS	SHRUBS	WETLAND PLANTS	SHALLOW WATER	POTENTIAL AS HABITAT FOR: OPENLAND WILDLIFE	WOODLAND WILDLIFE	WETLAND WILDLIFE	RANGELAND WILDLIFE
ALL	FAIR	GOOD	GOOD	—	—	FAIR	V POOR	V POOR	GOOD	—	V POOR	FAIR

POTENTIAL NATIVE PLANT COMMUNITY (RANGELAND OR FOREST UNDERSTORY VEGETATION)

FOOTNOTE

PHASE 401

PLANT 411

COMMON PLANT NAME	PLANT SYMBOL (NLSPN)	PERCENTAGE COMPOSITION (DRY WEIGHT) BY CLASS DETERMINING PHASE: ALL
WESTERN WHEATGRASS	AGSM	20
SLENDER WHEATGRASS	AGPA	20
JUNEGRASS	KOCR	5
NEEDLE AND THREAD	STCO4	5
OTHER PERENNIAL GRASSES	PPGG	5
SEDGE	CAREX	5
PHLOX	PHLOX	5
SKELETON LOCO	ASAS2	2
ROCKY MTN PENSTEMON	PEST2	2
OTHER PERENNIAL FORBS	PPFF	3
DWARF RABBITBRUSH	CHDI2	5
WINTERFAT	EULA5	3
BIG SAGEBRUSH	ARTR2	15
OTHER SHRUBS	SSSS	5

PRODUC 431

POTENTIAL PRODUCTION (LBS./AC. DRY WT):	
FAVORABLE YEARS	1200
NORMAL YEARS	950
UNFAVORABLE YEARS	700

NOTES 441

FOOTNOTES

SYM.	
1	RANGE SITE IS CLAYEY FOOTHILLS

| | | |

SCS-SOILS-37A
3-75

CONVENTIONAL AND SPECIAL SYMBOLS LEGEND

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

Soil Survey Area: Rio Blanco County
State: Colorado

Date: 8/75

CULTURAL FEATURES

BOUNDARIES

- National, state, or province
- County or parish
- Minor civil division
- Reservation (national forest or park, state forest or park, and large airport)
- Land grant
- Limit of soil survey (label)
- Field sheet matchline & neatline
- AD HOC BOUNDARY (label)
- Small airport, airfield, park, oilfield, cemetery, or flood pool

STATE COORDINATE TICK
1 890 000 FEET

LAND DIVISION CORNERS (sections and land grants)

ROADS

- Divided (median shown if scale permits)
- County, farm or ranch

EMBLEMS & DESIGNATIONS

- Interstate 66
- Federal 287
- State 52
- Other 398

- RAILROAD
- POWER TRANSMISSION LINE (normally not shown)
- PIPE LINE (normally not shown)
- FENCE (normally not shown)

LEVEES

- Without road
- With road
- With railroad

DAMS

- Large (to scale)
- Medium or small

PITS

- Gravel pit
- Mine or quarry

CULTURAL FEATURES (cont.)

MISCELLANEOUS CULTURAL FEATURES

- Farmstead, house (omit in urban areas)
- Church
- School
- Indian mound (label)
- Located object (label)
- Tank (label)
- Wells, oil or gas
- Windmill
- Kitchen midden

WATER FEATURES

DRAINAGE

- Perennial, double line
- Perennial, single line
- Intermittent
- Drainage end
- Canals or ditches
- Double - line (label) CANAL
- Drainage and/or irrigation

LAKES, PONDS AND RESERVOIRS

- Perennial: water, w
- Intermittent: intermittent, int

MISCELLANEOUS WATER FEATURES

- Marsh or swamp
- Spring
- Well, artesian
- Well, irrigation
- Wet spot

SPECIAL SYMBOLS FOR SOIL SURVEY

SOIL DELINEATIONS AND SOIL SYMBOLS

- ESCARPMENTS CeA FoB2
- Bedrock (points down slope)
- Other than bedrock (points down slope)
- SHORT STEEP SLOPE
- GULLY
- DEPRESSION OR SINK
- SOIL SAMPLE SITE (normally not shown) S

MISCELLANEOUS

- Blowout
- Clay spot
- Gravelly spot
- Gumbo, slick or scabby spot (sodic)
- Dumps and other similar non soil areas
- Prominent hill or peak
- Rock outcrop (includes sandstone and shale)
- Saline spot
- Sandy spot
- Severely eroded spot
- Slide or slip (tips point upslope)
- Stony spot, very stony spot

RECOMMENDED AD HOC SOIL SYMBOLS

CONVENTIONAL AND SPECIAL SYMBOLS LEGEND

SOIL CONSERVATION SERVICE
U.S. DEPARTMENT OF AGRICULTURE

Soil Survey Area: Rio Blanco County, Colorado

Date: 8/1/72

SCS-SOILS-37A

CULTURAL FEATURES		CULTURAL FEATURES (cont.)		SOIL SURVEY SPECIAL SYMBOLS FOR	
DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL
BOUNDARIES		MISCELLANEOUS CULTURAL FEATURES		SOIL DELINEATIONS AND SOIL SYMBOLS	
National, state, or township		Farmstead, house (label to right if more than one)		EROSION	CRA / FRSS
Land grant		Church		Gully	
Minor civil division		School		Severely eroded area	
Reservation (Indian)		Indian mound (label)		Blowout (bottom, side)	
Land grant, reservation, or township		Located object (label)		Sandy spot	
Urban built-up area		Tank (label)		Clay spot	
Small park, cemetery, airport, or landing strip		Well, oil or gas		Gravelly spot	
Levee		Windmill		Landslide	
Major civil division		Kitchen midden		Other miscellaneous areas	
Minor civil division		WATER FEATURES		Saline spot	
Reservation (national forest or park, state forest or park, and large airport)		DRAINAGE		Sandy spot	
State coordinate tick		Perennial, double line		Stony spot or very stony spot	
Land grant tick		Intermittent		Spoil or mine dump	
Fence (generic)		Canal or ditch		Dune (label)	
Road		Lake or pond		Water well, spring, or submerged well	
Trail		Perennial, single line		Wet spot	
Railroad		Intermittent, single line		Drainage end or alluvial fan	
Pipeline (label if not apparent)		Drainage end		Escarpment (bedrock other than rock outcrop or sandstone)	
Cable		Perennial, double line		Rock outcrop (sandstone, limestone, lava, or other)	
Power transmission line (with support)		Intermittent		Saline seep	
Telephone line		Canal or ditch		Sandy spot	
Fence (generic)		Lake or pond		Severely eroded spot	
Cattleguard		Perennial, double line		Slide or slip (include arrow in direction of movement)	
Large road (median determined by scale)		Intermittent		Wet spot	
Small road (median determined by scale)		Perennial, single line		Prominent hill or peak	
Trail		Intermittent, single line		Rock outcrop (sandstone, limestone, lava, or other)	
Railroad		Perennial, double line		Saline spot	
Pipeline (label if not apparent)		Intermittent		Sandy spot	
Cable		Canal or ditch		Stony spot or very stony spot	
Power transmission line (with support)		Lake or pond		Spoil or mine dump	
Fence (generic)		Perennial, double line		Water well, spring, or submerged well	
Cattleguard		Intermittent		Wet spot	
Large road (median determined by scale)		Perennial, single line		Drainage end or alluvial fan	
Small road (median determined by scale)		Intermittent, single line		Escarpment (bedrock other than rock outcrop or sandstone)	
Trail		Perennial, double line		Rock outcrop (sandstone, limestone, lava, or other)	
Railroad		Intermittent		Saline spot	
Pipeline (label if not apparent)		Canal or ditch		Sandy spot	
Cable		Lake or pond		Stony spot or very stony spot	
Power transmission line (with support)		Perennial, double line		Spoil or mine dump	
Fence (generic)		Intermittent		Water well, spring, or submerged well	
Cattleguard		Perennial, single line		Wet spot	
Large road (median determined by scale)		Intermittent, single line		Drainage end or alluvial fan	
Small road (median determined by scale)		Perennial, double line		Escarpment (bedrock other than rock outcrop or sandstone)	
Trail		Intermittent		Rock outcrop (sandstone, limestone, lava, or other)	
Railroad		Canal or ditch		Saline spot	
Pipeline (label if not apparent)		Lake or pond		Sandy spot	
Cable		Perennial, double line		Stony spot or very stony spot	
Power transmission line (with support)		Intermittent		Spoil or mine dump	
Fence (generic)		Perennial, single line		Water well, spring, or submerged well	
Cattleguard		Intermittent, single line		Wet spot	
Large road (median determined by scale)		Perennial, double line		Drainage end or alluvial fan	
Small road (median determined by scale)		Intermittent		Escarpment (bedrock other than rock outcrop or sandstone)	
Trail		Canal or ditch		Rock outcrop (sandstone, limestone, lava, or other)	
Railroad		Lake or pond		Saline spot	
Pipeline (label if not apparent)		Perennial, double line		Sandy spot	
Cable		Intermittent		Stony spot or very stony spot	
Power transmission line (with support)		Perennial, single line		Spoil or mine dump	
Fence (generic)		Intermittent, single line		Water well, spring, or submerged well	
Cattleguard		Perennial, double line		Wet spot	
Large road (median determined by scale)		Intermittent		Drainage end or alluvial fan	
Small road (median determined by scale)		Canal or ditch		Escarpment (bedrock other than rock outcrop or sandstone)	
Trail		Lake or pond		Rock outcrop (sandstone, limestone, lava, or other)	
Railroad		Perennial, double line		Saline spot	
Pipeline (label if not apparent)		Intermittent		Sandy spot	
Cable		Perennial, single line		Stony spot or very stony spot	
Power transmission line (with support)		Intermittent, single line		Spoil or mine dump	
Fence (generic)		Perennial, double line		Water well, spring, or submerged well	
Cattleguard		Intermittent		Wet spot	
Large road (median determined by scale)		Canal or ditch		Drainage end or alluvial fan	
Small road (median determined by scale)		Lake or pond		Escarpment (bedrock other than rock outcrop or sandstone)	
Trail		Perennial, double line		Rock outcrop (sandstone, limestone, lava, or other)	
Railroad		Intermittent		Saline spot	
Pipeline (label if not apparent)		Perennial, single line		Sandy spot	
Cable		Intermittent, single line		Stony spot or very stony spot	
Power transmission line (with support)		Perennial, double line		Spoil or mine dump	
Fence (generic)		Intermittent		Water well, spring, or submerged well	
Cattleguard		Canal or ditch		Wet spot	
Large road (median determined by scale)		Lake or pond		Drainage end or alluvial fan	
Small road (median determined by scale)		Perennial, double line		Escarpment (bedrock other than rock outcrop or sandstone)	
Trail		Intermittent		Rock outcrop (sandstone, limestone, lava, or other)	
Railroad		Perennial, single line		Saline spot	
Pipeline (label if not apparent)		Intermittent, single line

Rules of Application for Use of Conventional and Special Map Symbols for Soil Surveys

1. All symbols are black. Symbols other than boundaries, roads, streams, drainage ends, and soil delineations (pen sizes listed below) will be placed on type overlays of project surveys with clear stripping film with adhesive backing (stickup). Pen size 00 is to be used for symbols on field sheets and for map compilation of other surveys with the following exceptions:

Pen size	Symbols
0	-- Trail and soil delineation.
1	-- Minor civil division, reservation, land grant and limit of soil survey.
2	-- National, state or province, county or parish boundaries, and center line of dams.
2.5	-- All roads except trails.

2. All the symbols shown on the legend will not be used in a single soil survey. Symbols actually used will be underlined in red during the initial field review. Changes in symbols selected must be approved by the state soil scientist.

3. Ad hoc symbols will be defined in the legend in terms of the specific kind and size of area represented.

4. All mapping unit boundaries are unbroken lines. Enclosed areas of water, double line streams and double line canals are mapping unit boundaries.

5. Single and double line roads, railroads, minor civil division lines, field sheet match lines or neatlines, soil survey area boundaries, single line canals, and levees are not mapping unit boundaries.

6. Areas represented by conventional and special symbols will not be included in the table "Approximate Acreage and Proportionate Extent of the Soils" in soil surveys. Acreage for enclosed areas of water more than 40 acres in size; and streams, sloughs, estuaries and canals more than one-eighth of a statute mile in width is given at the end of the table under "water".

7. The following rules apply to symbols for pits, marsh or swamp, and dumps and other similar nonsoil areas:

   a. Areas less than the minimum size delineation being used in the survey area are indicated only by symbols.

   b. Areas greater than the minimum size delineation being used in the survey area are delineated, classified, and correlated as mapping units.

8. Where a map scale change occurs in a soil survey area a neatline is used as a boundary. The map scale change is made a part of the joins note parallel to the neatline, e.g. Joins sheet 89 - 1:31680.

9. Proposed roads are not shown. Where the photo image shows a road under construction, represent it on the map as if it were constructed. Interchanges and access and egress ramps to limited access roads are not shown. "Other" roads are shown as necessary for proper orientation of the map.

10. Symbols for schools and churches are centered on the photo image and are not inked to scale.

11. Departure from these conventional and special symbols must be approved by the Deputy Administrator for Soil Survey.

Rules of Application for Use of Conventional and Special Map Symbols for Soil Surveys

Symbols	Pen size
0	-- Trail and soil delineation.
1	-- Minor civil division, reservation, land grant and limit of soil survey.
2	-- National, state or province, county or parish boundaries, and
	context line of game.
2.5	-- All roads except trails.

5. All the symbols shown on the legend will not be used in a single soil survey. Symbols actually used will be modified to req quring the initial field review. Changes in symbols selected must be approved by the state soil scientist.

6. All symbols represented by conventional and special symbols will not be included in the table of symbols for soil surveys. Acreage for "Approximate Acreage and Proportionate Extent of the Soils" in soil surveys. Acreage and "Extent of Mapping Units" may be omitted. Interpretations and access and ages to interpret if no file map as if if were constructed. Interchanges and access may be necessary for proper orientation of the map.

7. The following rules apply to symbols for brid, water or swamp, and quamp and other similar boundaries:

   a. Areas less than the minimum size definition being used in the survey area are indicated only by symbols.

   b. Areas greater than the minimum size definition being used in the survey area are delineated, classified, and correlated as mapping units.

8. Where a map scale change occurs in a soil survey area a boundline is used as a boundary. The map scale change is made a part of the joins note parallel to the baseline, e.g. Joins sheet 28 - L:3f080.

9. Proposed roads are not shown. Where the photo image shows a road under construction, interchange if no file map as if if were constructed. Interchanges and access and egress roads to limited access roads are not shown. "Other" roads are shown as necessary for proper orientation of the map.

10. Symbols for schools and churches are centered on the photo image and are not turned to scale.

11. Departure from these conventional and special symbols must be approved by the deputy administrator for soil survey.